MARCH 1942

COTTON

SERVING THE

Textile Industries

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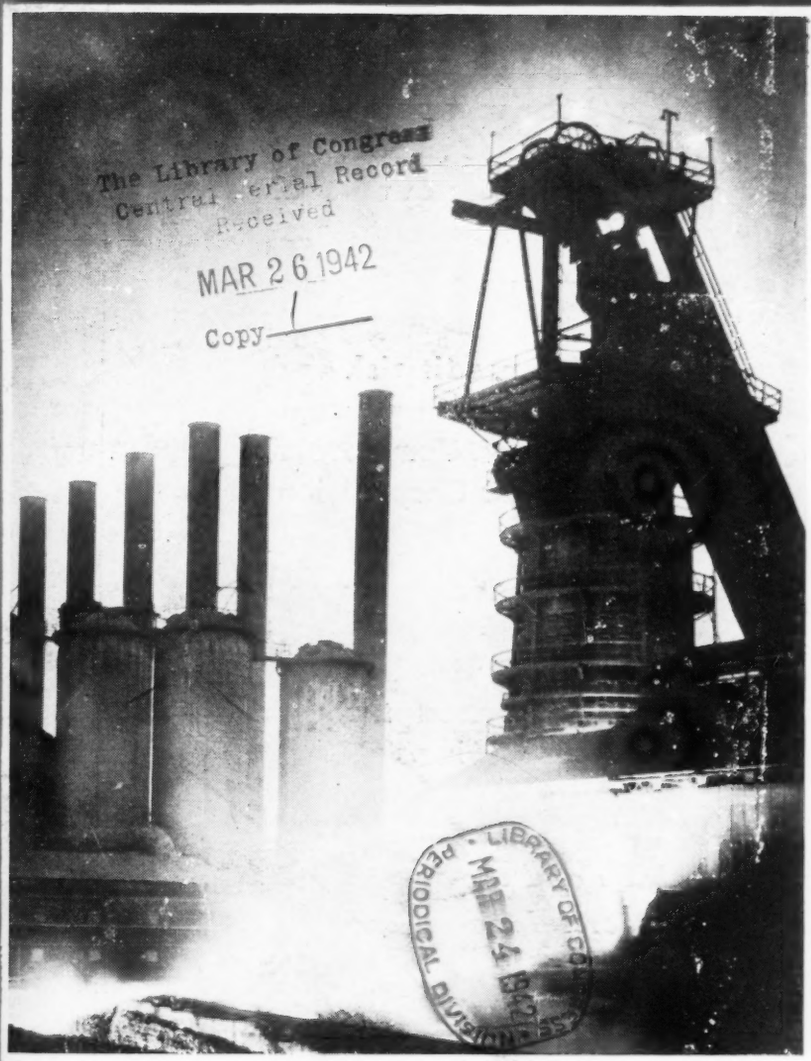

When the word goes out---

"PRODUCTION MUST BE INCREASED!"

Employers and Employees both know it means working and living under high pressure.

Accidents and illness take a heavy toll in normal times, but soar upward in periods of national stress, with serious results to production.

The traffic accident rate increased almost 16 per cent alone in 1941, over the preceding year.

Workers protected by a Provident HUMAN SECURITY plan have found that it enables many to return to the job promptly after treatment for illness or accident, often in better physical condition than before. That's because this program provides funds for prompt and efficient medical skill and hospital care when needed.

ARE YOUR WORKERS SO PROTECTED?

NOTE THE WIDE COVERAGE OFFERED THROUGH PROVIDENT

HUMAN SECURITY
providing emergency funds for

- Death in family
- Loss of time due to Sickness or Accident
- Hospitalization or operation when necessary
- Aiding dependents upon death of employee
- Maternity benefits

EMERGENCY INCOME

The Home of

1942--Our 55th Anniversary Year--1942

PROVIDENT

LIFE AND ACCIDENT INSURANCE COMPANY

• Specialists in HUMAN SECURITY (Emergency Income) Plans for over a Half Century •

Factoring

Points the Way

Cash As You Ship

Receive cash for shipments as made . . . yet extend your usual credit terms to customers.

No Credit Losses

Full credit risk and responsibility assumed by Commercial Factors Corporation.

No Collection Expense

Collection worry and expense and the cost of credit checking eliminated through our service.

Learn more about these and the other benefits of Commercial factoring by writing for this information.

COMMERCIAL FACTORS CORPORATION

Fred'k Vietor & Achelis, Inc. Established 1828
Schefer, Schramm & Vogel Established 1838
Peierls, Buhler & Co., Inc. Established 1893

TWO PARK AVENUE, NEW YORK

Your Looms

Built for Peace Time Weaves

Can Be Changed

To

Looms for War Contracts

Normal Service Continues on Loom Repairs Shuttles and Bobbins

Our Government is Going to Require → that the larger part of the Looms of our Country fall in line on the Program for War Time Fabrics

→ Your Looms can be made to fit into that Program

→ Shelter Tent Duck—for instance—is being made on E Model Looms

→ Somewhere down the list of Needed Fabrics is the one You Can Make

We Can Supply The Necessary Parts → To change over the average loom—be it one of our older models or a loom of the X Series—to weave a Wide Range of Fabrics that are needed by our Army, our Navy and our Air Corps

Let's Talk It Over

DRAPER CORPORATION

Hopedale Massachusetts

Atlanta Georgia Spartanburg S C

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Volume 106. Number 3.

CUSHIONED SPINDLES ASSURE...

Smoother Yarn!

SPINDLES that assure more uniform tension and twist . . . produce smoother, stronger yarns . . . are proven results of using *Texaco Spindura Oils.*

Spindura Oils literally cushion spindles, damp vibration, reduce power consumption. They minimize "fogging" and will not thicken in service.

The outstanding performance that has made Texaco preferred in the fields listed in the panel has made it preferred by textile mills everywhere.

These Texaco users enjoy many benefits that can also be yours. A Texaco Lubrication Engineer will gladly cooperate . . . just phone the nearest of more than 2300 Texaco distribution points in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

THEY PREFER TEXACO

★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and cars in the U. S. are lubricated with Texaco than with any other brand.

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

FOR YOUR ENJOYMENT

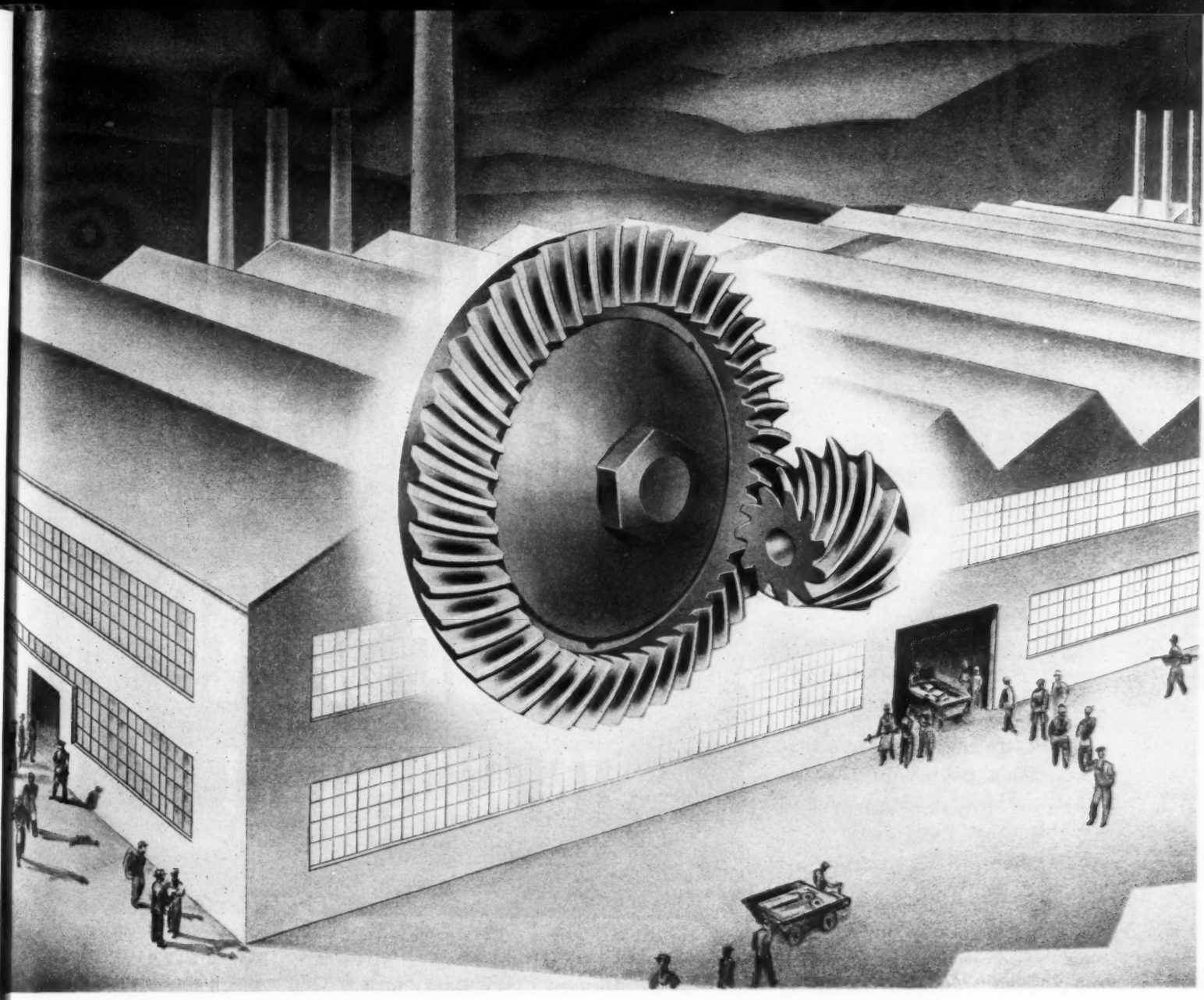
FRED ALLEN every Sunday night. See your local newspaper for time and station.

TEXACO

TEXACO Lubricants

FOR THE TEXTILE INDUSTRY

RETURN METAL DRUMS PROMPTLY . . . thus helping to make present supply meet industry's needs and releasing metal for War Needs.



Cleaning Metal CLEANER

Between machining operations, prior to gaging and inspecting, preparatory to finishing or plating, precision parts are degreased . . . freed of every trace of oil, grease, dirt and contamination. Important is absolute cleanliness of surfaces to be plated so as to avoid "pinholes" from which film breakdown starts.

Cleaning metal surfaces *cleaner*—doing it quickly and at low cost—is the job of TROMEX, metal-degreasing solvent now being made available by Warner to America's expanding metal-working and metal-finishing plants. Already our entire current output of Tromex Metal Degreasing Solvent has been allocated to essential industries.

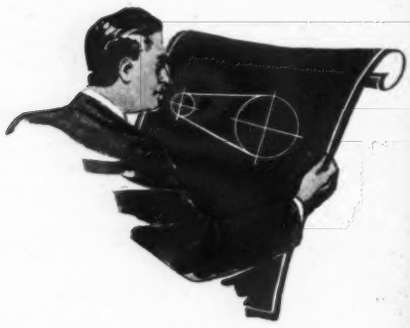
This latest addition to the growing list of Warner Chemicals is a practical result of our long-term policy of intensifying research on the development of useful, new industrial chemicals even though our plants are presently operating at capacity.

WARNER CHEMICAL COMPANY

Division of WESTVACO CHLORINE PRODUCTS CORPORATION

CHRYSLER BUILDING, NEW YORK, N. Y.

CHICAGO, ILL. · GREENVILLE, S. C. · NEWARK, CAL.



MILLIONS IN RUBBER WASTE CAN BE SAVED IN INDUSTRY!

LET THE G. T. M. HELP YOU MAKE YOUR MECHANICAL RUBBER EQUIPMENT LAST LONGER

IN American factories millions of dollars worth of industrial rubber goods fail prematurely every year due to improper inspection and unintentional abuse.

This waste must stop—now that America's rubber life line is under attack. Every pound of rubber must work to the limit for victory.

Today it is essential to take the utmost care of any rubber product you now have in operation or in stock—*because replacement may be difficult in the months ahead, even on priorities!*

That is where the G. T. M.—Goodyear Technical Man—can be of greater help and service to you than ever before. In the past his expert skill in the correct application and installation of rubber has been responsible for countless performance records in all branches of industry.

By consulting the G. T. M. today, by following his recommendations on the proper handling of belting, hose and other rubber products, you can increase their service life measurably at a time when any increase in their life is critical.

He will be glad to go over your installations, to make suggestions and give you tips that will enable you to obtain all the service built into your rubber equipment—to prevent waste of America's most precious war material.

This service costs you nothing. The G. T. M. will be glad to call at your plant—to give you the benefit of his specialized training.

To call in the G. T. M., write Goodyear, Akron, Ohio or Los Angeles, California—or phone the nearest Goodyear Mechanical Rubber Goods Distributor.

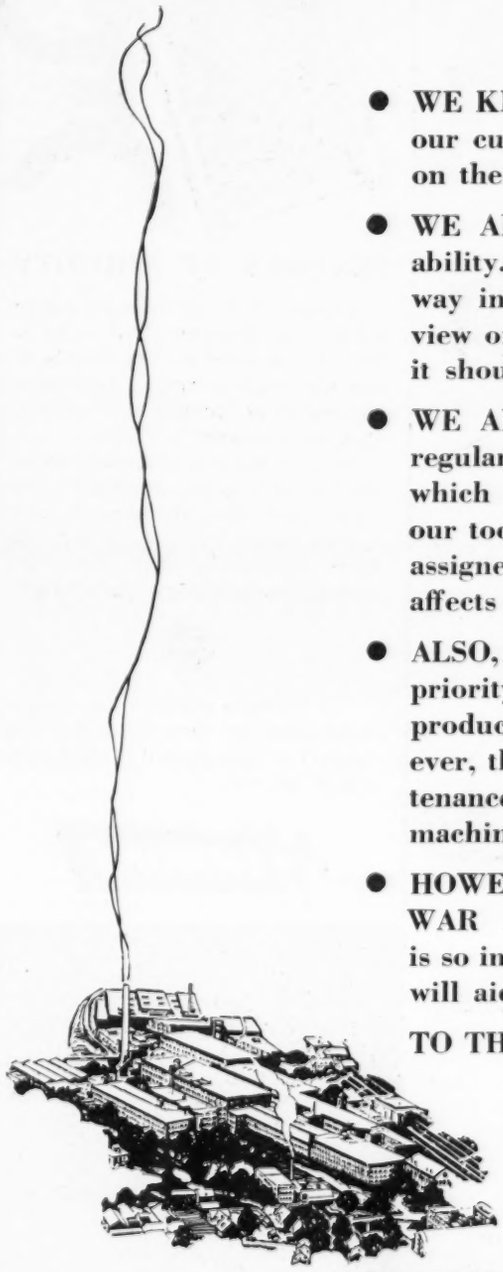
G.T.M

Serving on the Industrial Front to guard America's rubber supply

GOODYEAR

MECHANICAL GOODS

Deliveries on Textile Machinery



- **WE KNOW WE CANNOT SHIP** as much textile machinery as our customers want . . . or give them as prompt deliveries on their orders for repairs and parts as they think we should.
- **WE ARE SERVING THE TRADE** today to the best of our ability. Naturally, we are governed by Washington as to the way in which we can serve it best. We feel, however, that in view of the all-out effort needed from the textile industry that it should have full consideration.
- **WE ARE VERY BUSY TODAY** making, in addition to our regular lines of textile machinery, a great many new things which are necessary in the armament program; and much of our tool equipment and a large part of our working force are assigned to this outside work for the duration. Naturally this affects to some extent our ability to produce textile machinery.
- **ALSO, WE ARE IN A WAR ECONOMY** wherein orders bearing priority ratings from the government have first place in our production schedule. We think we can assure the mills, however, that there will be an adequate supply of repairs for maintenance, and we also believe that a substantial amount of textile machinery will be built.
- **HOWEVER,** the principal job for all of us today is to **WIN THIS WAR** . . . and to win it as quickly as possible. Nothing else is so important. Nothing should be overlooked or neglected that will aid the program and objectives of our government.

TO THAT END WE PLEDGE ALL OUR EFFORTS.

E. Kent Swift

President

WHITIN MACHINE WORKS

Whitinsville, Massachusetts, U. S. A.

Charlotte, N. C. Atlanta, Ga.

TOUGH, BUT NOT ROUGH

Emmons Heddles Reduce Weaving Variables

Writing "Emmons" in front of your order for steel heddles is a simple way to reduce warp breaks and cut replacement costs.

Emmons "Certified" Steel Heddles are watched carefully throughout manufacture to insure the qualities that mean gentle handling of the yarn and greatest resistance to wear — smoothness of eye, high tensile strength, corrosion resistance.

In addition to final tests to earn our "Inspected and Approved" seal, sample heddles are periodically examined by a famous testing laboratory.

Result: a heddle that is tough when it comes to wear, but never rough to yarn. You can expect greater freedom from roughed-up yarn, less "fly," longer periods between replacements.

Be Certain . . . Buy Certified

EMMONS LOOM HARNESS COMPANY
Lawrence, Massachusetts . . . . Charlotte, North Carolina

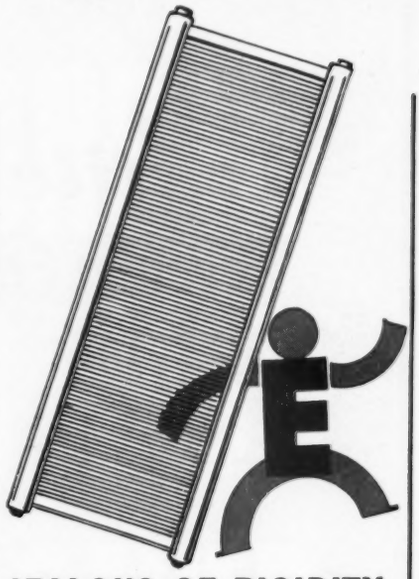
WORKS FAST

WITHOUT JITTERS

If you've ever had a heddle frame buckle or bind at high speeds, you'll appreciate the strong construction of Emmons Heddle Frames. Rolled rivets provide extra strength where it is really needed. We use more than the usual number of rivets, too.

EMMONS

GENEROUS TO YARN



JEALOUS OF RIGIDITY

You get all the air space your yarn needs in an Emmons Reed — up to 70% if you want it. Yet there's no loss of strength or rigidity, because as the reed wires decrease in *thickness*, they are *increased* in *width*.

This air space is accurately measured to .01", so you won't get reedy cloth. And dent thickness is controlled within .001" — you get uniform, super-smoothness that can't help but result in better-quality work.

All Emmons products are shipped only when the tests of an Emmons Inspector have proved them deserving of this seal.

EMMONS

Lawrence, Mass. and Charlotte, N. C. All products stocked in Charlotte and Lawrence. Reeds manufactured in Charlotte. Branch offices: Clifton Watson, Manager of Southern Sales, Box 2036, Charlotte (Tel. Charlotte 3-7503) . . . Arthur Harris, Box 1982, Atlanta (Tel. Main 2643) . . . Alvin Braley, Box 236, Itasca, Tex. (Tel. 170) . . . W. S. Taylor, 171 Madison Ave., New York (Tel. Lexington 2-6060) . . . Albert R. Breen, 80 East Jackson Blvd., Chicago (Tel. Harrison 7140).

Argentina, Buenos Aires, Roberto Zander, 345 Juan Jaures; *Brazil*, Rio de Janeiro, A. Polak, Caixa Postal 362; *Chile*, Santiago, W. L. Robinson, Casilla 1570, Valparaiso; *Cuba*, Havana, J. M. Perez-Pena, Box 1611; *Mexico*, Mexico, D. F. Leo Lenk, Apartado 533; *Colombia*, Medellin, C. E. Halaby & Co., P. O. Box 139.

See latest TEXTILE WORLD YEARBOOK for Details on all Emmons Products.

How can I

★ ***step up efficiency?***
★ ***increase production?***
★ ***stop wasting daylight?***
★ ***stop wasting artificial light?***

Your ceilings and walls will tell you!

Suppose this order were issued to you today—

"By this time next week, increase production by 10%."

What would your answer be? That you must have more men? That you need more machinery? That your equipment is now operating at peak efficiency?

Let's look at another answer:

Paint your ceilings and walls WHITE!

Here's what a noted lighting engineer says on this subject:

"Scientific tests show that white interiors which have turned yellow . . . which are covered with dirt . . . or interior surfaces which are unpainted . . . may reduce illumination as much as 60%, *slow down production of your workers 10% or more.*"

Translated into terms of present-day production, working on three shifts a day, doesn't this mean that clean white ceilings and walls can be the direct cause of a 10% production step-up?

White paint's amazing power to reflect light brings other important benefits as well. Particularly important in these times, it stretches daylight . . . puts your lighting system on shorter hours. When your lights are on during night shifts, white paint can raise their efficiency by as much as 50%. By promoting better vision, reducing eyestrain and fatigue, white paint helps your men do better work. And it improves sanitation, cuts down accidents.

With these facts in mind, isn't a good white paint job a "must" in your plant? Remember, it is quickly and easily accomplished, and its benefits to your production schedules are too important to be neglected.

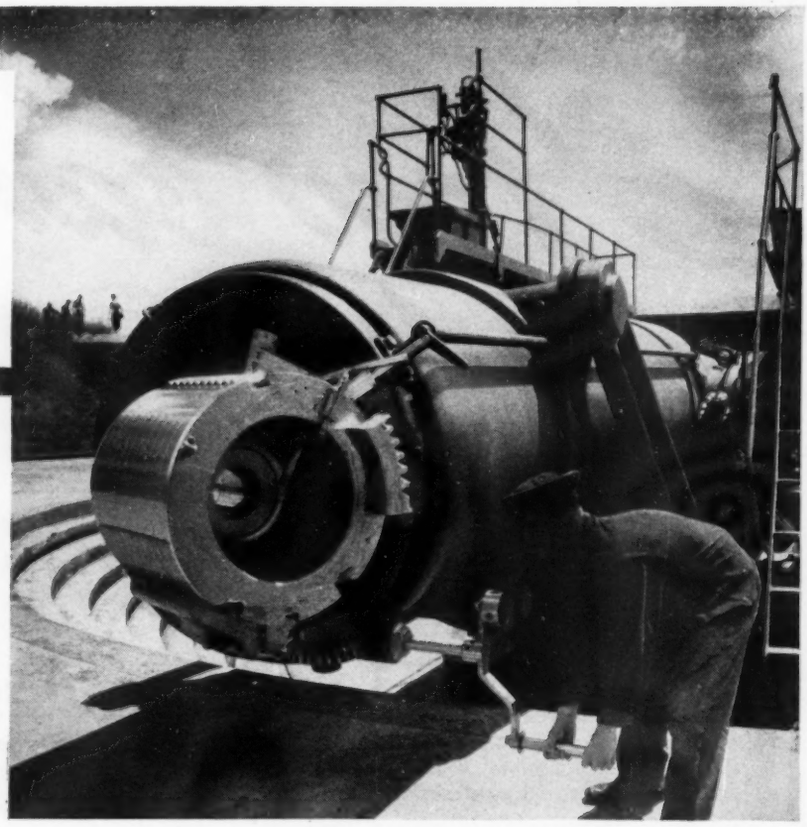
• • •

For more than 40 years, Barreled Sunlight has been a recognized leader in the white-paint field. A Barreled Sunlight Representative will be glad to help you work out the most efficient, economical painting program for your plant. For details, write U. S. Gutta Percha Paint Co., 8-C Dudley St., Providence, R. I.

BARRELED SUNLIGHT

SPECIALISTS FOR FORTY YEARS IN WHITE PAINT FOR INDUSTRY

WAR SPEED-UP cannot be fully maintained with inadequate lubrication. For *correct* lubrication of *TEXTILE MACHINERY* there are . . .



. . . SINCLAIR LILY WHITE OILS and NO-DRIP LUBRICANTS . . . oils that keep productive machine hours up, spindle drag and temperatures down . . . non-throwing lubricants exactly suited to top roll requirements. Further information, or lubrication counsel (including *Knitting Machinery*), may be had by writing to nearest Sinclair office, or to Sinclair Refining Company, 630 Fifth Avenue, New York, New York.

Write for "The Service Factor"—a free publication devoted to the solution of lubricating problems.

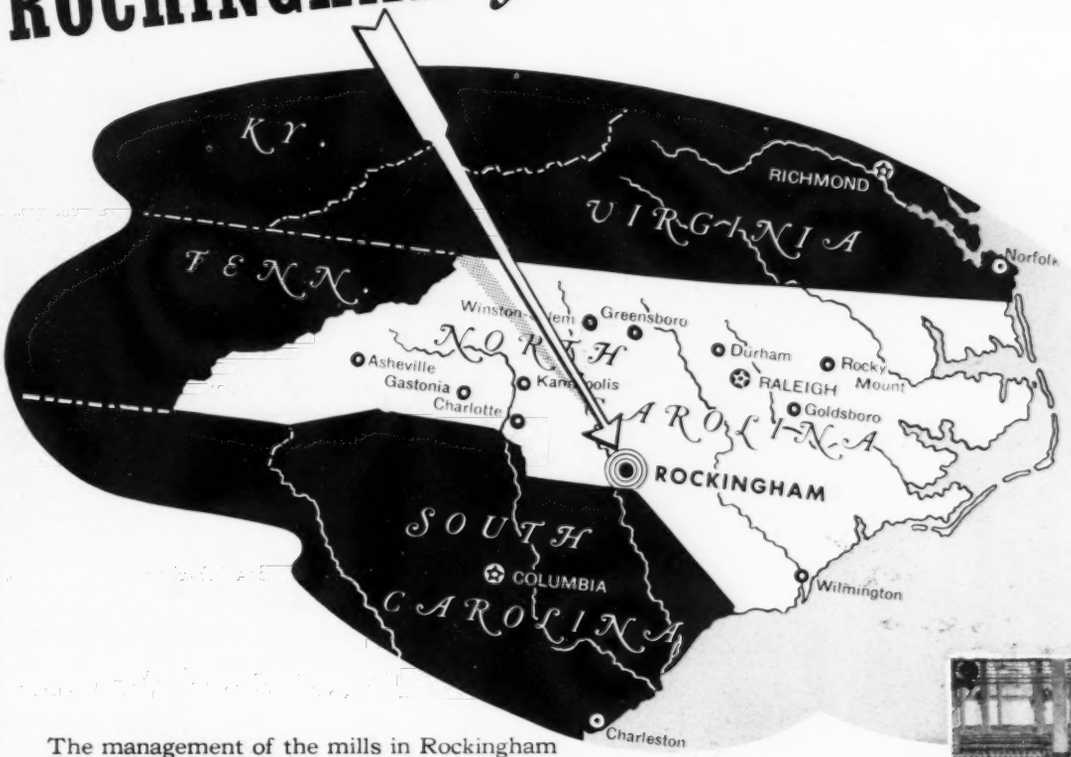
CARDING MACHINES (*Saco-Lowell*) *in plant of Cotton Specialties Co., Chicago. Lubricated 10 years with Sinclair Oil.*

SINCLAIR TEXTILE LUBRICANTS

SINCLAIR REFINING COMPANY (Inc.)

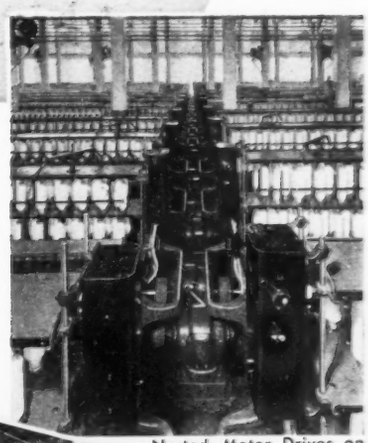
2540 West Cermak Road, Chicago • 10 West 51st Street, New York City • Rialto Bldg., Kansas City • 573 West Peachtree Street, Atlanta • Fair Building, Ft. Worth

ROCKINGHAM *goes* SACO-LOWELL

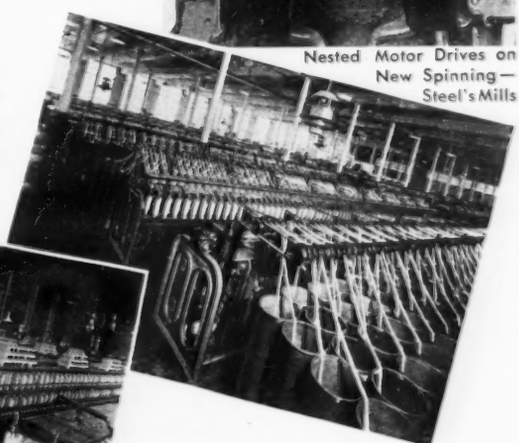


The management of the mills in Rockingham became aware of the advantages inherent in the new cotton spinning equipment. They appreciated the importance of the trend toward simplification in cotton-spinning processes and watched with interest the ever-increasing number of mills planning to carry on programs of modernization. As both capable and practical manufacturers and business men, they also knew that even with sound management, skillful manipulation and efficient supervision they could not operate their good but obsolete equipment profitably in competition with mills having the indisputable advantages of newer and more productive machinery.

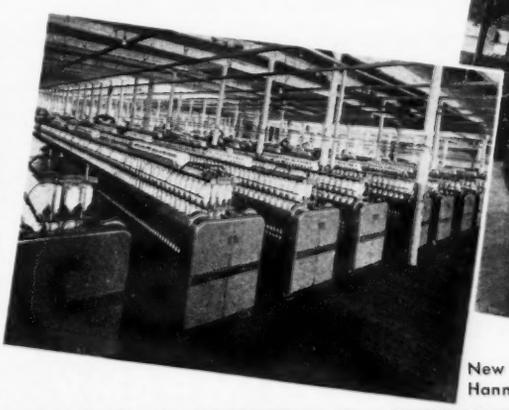
In consultation with their own managements and our engineers, a series of studies and plans were prepared. The modernization program just completed was a long-range one . . . with plenty of time spent in preliminary studies to assure thoroughness and accuracy.



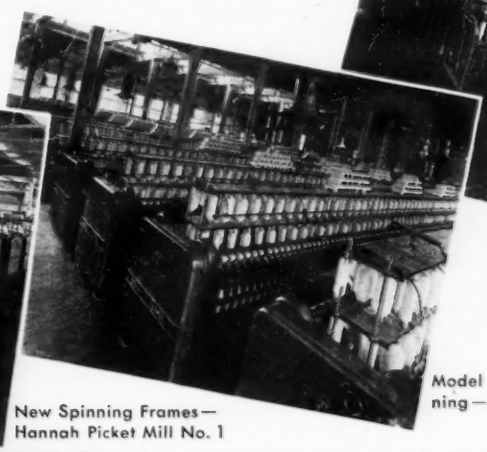
Nested Motor Drives on New Spinning—Steel's Mills



Controlled Draft Roving —Entwistle's Modern Card Room.



New Spinning Frames—Hannah Picket Mill No. 1



Model 38 Better Draft Spinning—Pee Dee Mill No. 2

SACO-LOWELL SHOPS 60 BATTERYMARCH STREET, BOSTON, MASSACHUSETTS

Charlotte, No. Carolina Greenville, So. Carolina Atlanta, Georgia

COLT MOTOR CONTROLS

Colt Manual Starter featuring automatic relatching toggle mechanism

Colt Magnetic Starter equipped with ball-bearing suspended magnet

Safe

Durable

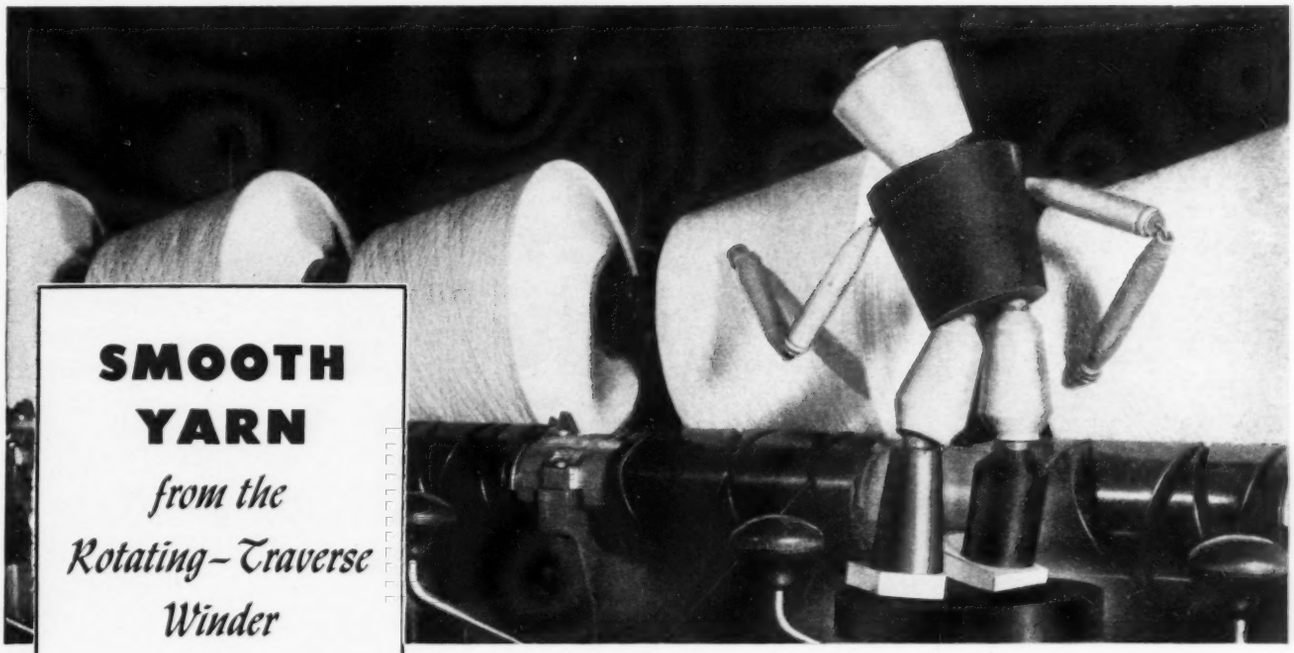
Compact

Attractive

For the automatic controls required on today's high-speed textile mill machinery, COLT has developed a complete line of Size "0" and Size "1" Starters . . . to provide protection for men, motors and machinery against such hazards as overloads and partial or complete voltage failures. COLT CONTROLS are compact . . . sturdily built for years of exacting service . . . attractive in appearance.

BRANCH OFFICES IN NEW YORK - PHILADELPHIA - BOSTON - ATLANTA - CHICAGO

COLT'S PATENT FIRE ARMS MFG. COMPANY
ELECTRICAL DIVISION HARTFORD, CONN.



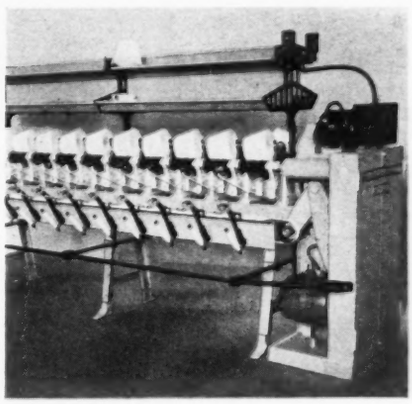
SMOOTH YARN *from the Rotating-Traverse Winder*

A spinner operating Roto-Coners* to produce open-wound cones of cotton knitting yarn, tells us: "In my opinion, the difference between a Roto-Cone* and any other cotton knitting cone, is the difference between the man who shaved this morning and the man who shaved yesterday!"

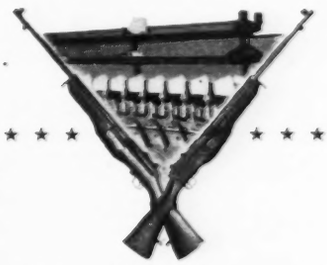
By holding two cones — one a Roto-Cone*, the other from a reciprocating-guide machine — to the light and sighting along the base, you can easily tell which cone has the smoother yarn.

The reason why the base of the Roto-Cone* is smooth can be found in the way the rotating traverse guides the yarn. Unlike other traversing methods, the rotating traverse revolves *in the same direction* the yarn is traveling. Thus, there is no chafing to rough up the fibers and cause a fuzzy appearance on the yarn.

Make this same test, and you will understand why knitters appreciate the better quality of Roto-Cones*, and why more and more spinners are modernizing their winding rooms with Roto-Coners*.



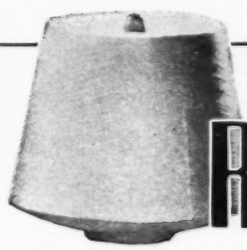
This modern, high speed machine may be equipped for paper coning or tubing, wood coning or for dye packages.



Universal—manufacturer of precision machinery — aids defense by manufacturing precision parts for military equipment.

See our catalog in TEXTILE YEARBOOK

*Reg. U. S. Pat. Off.



ROTO-CONER

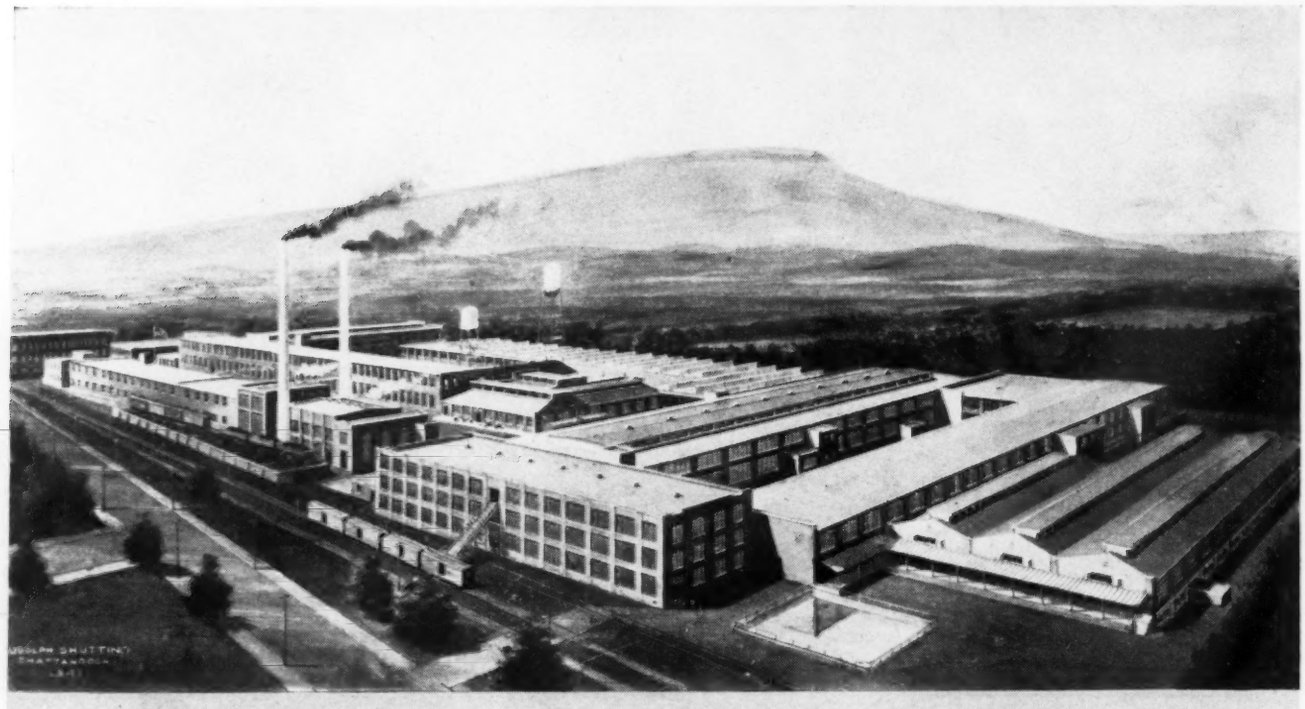
LEESONA Reg. U. S. Pat. Off.

OPEN-WIND CONES FOR KNITTING

DYEING PACKAGES — PARALLEL TUBES FOR TWISTING

UNIVERSAL WINDING COMPANY P. O. BOX 1605 **PROVIDENCE, R. I.**

BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA



SIX YEARS: FIVE PROJECTS

THE Peerless Woolen Mills of Rossville, Georgia, one of the largest manufacturers of woolen piece goods for men's, boys' and women's wear, blankets and mackinaws in this part of the country, have just completed their fifth major improvement in six years.

In 1936 Robert and Company were called in to undertake a complete reorganization of the production facilities of this mill. During the six-year period, we have carried out a series of extensive engineering projects for the Peerless Woolen Mills, the nature of which drew upon our wide experience in all phases of textile work.

Today our staff stands ready to serve your needs, regardless of their scope, with the same efficiency and exactness that have characterized our work during many years of close association with the textile industry.

PROJECTS COMPLETED for PEERLESS WOOLEN MILLS

1936	Carding and Spinning Mill
1936	Weave Shed
1940	Stock Preparation Department
1941	Dye Plant
1942	Boiler Plant

ROBERT AND COMPANY

INCORPORATED

Architects and Engineers

NEW YORK • ATLANTA • WASHINGTON

TODAY—
MORE THAN EVER,
EXPERIENCE COUNTS!

For example, Houghton's

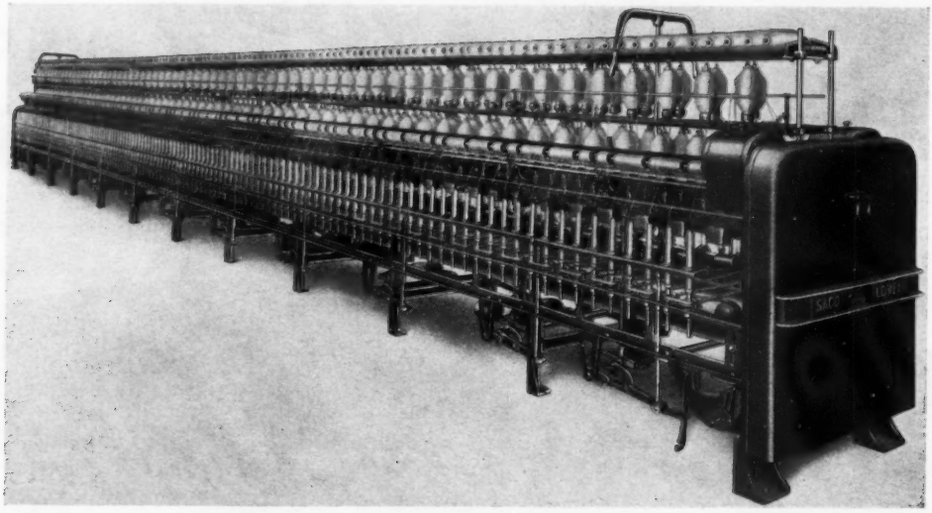
CHECK-UP TESTS ON COTTON WARP SIZING

A service given freely to mill men who desire to check the efficiency of their sizing process ★ a service which shows them how to increase weave room production with their present equipment ★ and a size compound so concentrated that an average of only 5% on weight of starch is required ★ This service and HOUGHTO-SIZE are the results of experience and research over these many years ★ They are at your command. Ask E. F. Houghton & Co., Philadelphia or Charlotte, how a Warp Size Check-up Test can be made in *your* mill!

E. F. HOUGHTON & CO.
303 W. Lehigh Ave., Philadelphia, Pa.
1301-05 W. Morehead St., Charlotte, N. C.

TURNING WAR TIME PROBLEMS INTO PROCESSING PROGRESS

HOUGHTON
PRODUCTS FOR THE TEXTILE INDUSTRY



At a Mile-a-Minute

Sealed metal containers guarantee that your U. S. Travelers will reach you in perfect condition, with no tampering or loss in count.

Manufacturers of textile machinery have spent painstaking years in developing up-to-date equipment so that the mills may keep abreast of the times and constantly increase their efficiency.

This is particularly true of manufacturers of spinning and twisting frames, all of whom have been working to design improvements in their equipment so that the mill may obtain the utmost in yarn quality at the lowest possible operating cost.

In buying new frames or in operating your old ones, don't unintentionally hamper their efficiency by neglecting "the focal point of good yarns" . . . the ring traveler.

Remember that spinning traveler speeds range from 3500 ft. to better than a mile per minute, with no lubrication whatsoever, and with only occasional cleaning.

At these speeds and under these conditions, the traveler HAS to be good, if you are to realize the maximum in quality yarn and efficient production from your spinning frames. That's why so many of the country's leading mills, regardless of type of frame used, rely entirely on U. S. Ring Travelers. Durable, precision-made, delicately balanced and rigidly inspected, they are accurately uniform in weight and shape.

U. S. Travelers actually cost LESS because they last longer and wear better, through their useful life, and insure smoother production.

U. S. RING TRAVELER CO.

PROVIDENCE, R. I. GREENVILLE, S. C.

AMOS M. BOWEN, Pres. and Treas.

Southern Sales Representatives:

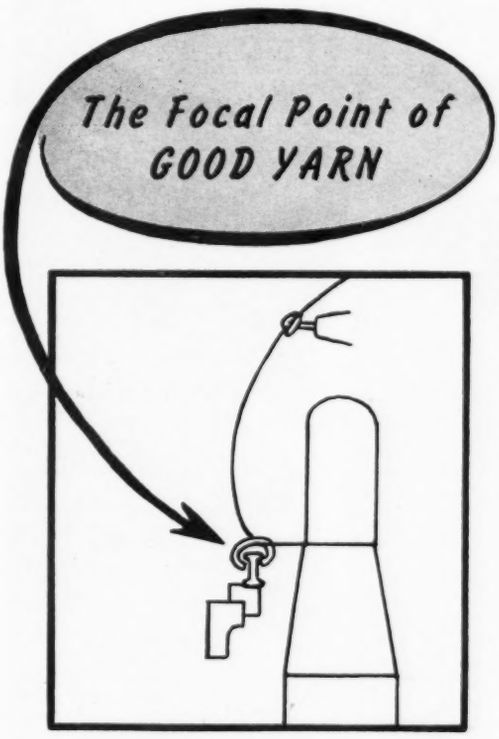
William P. Vaughan, P. O. Box 792, Greenville, S. C.
William H. Rose, P. O. Box 792, Greenville, S. C.
Torrence L. Maynard, P. O. Box 456, Belmont, N. C.
Oliver B. Land, P. O. Box 158, Athens, Georgia

UNIVERSAL RING

BOWEN ROUND POINT TRAVELERS
BOWEN SQUARE POINT TRAVELERS
BOWEN IMPROVED VERTICAL BRONZE
BOWEN PATENTED BEVEL EDGE
BOWEN PATENTED NE-BOW VERTICAL
BOWEN PATENTED VERTICAL OFFSET
BOWEN FLAT OVAL AND ROUND WIRE TRAVELERS

the Traveler has to be GOOD!

The Bowen Patented Bevel Edge feature of U. S. Ring Travelers produces ideally smooth, even yarn; there are no angular edges to flatten the end . . . no split ends in throwing rayon and silk . . . no fly-waste in the spinning and twisting of cotton, wool, worsted, asbestos and kindred fibres. Made and stocked in all sizes and weights, for all kinds and counts of yarns.

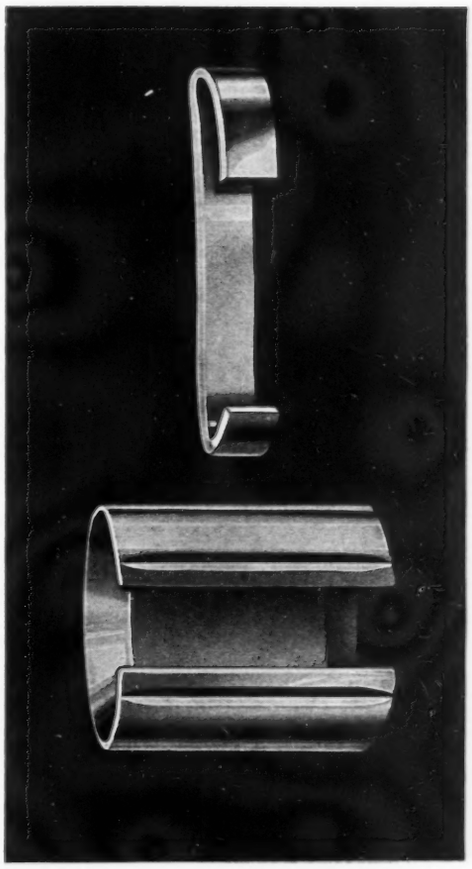


NE-BOW PATENTED VERTICAL RING TRAVELERS . . . Developed to meet the particular needs of the silk and rayon trade in the process of throwing. By eliminating pivoting action, traveler is constantly kept in close contact with lubricating device and assists in distributing the lubricant evenly over the entire inner surface of ring, prolonging life of both ring and traveler and promoting more even twist.

Samples for your exact requirements submitted upon request. Write direct, or contact your nearest representative.

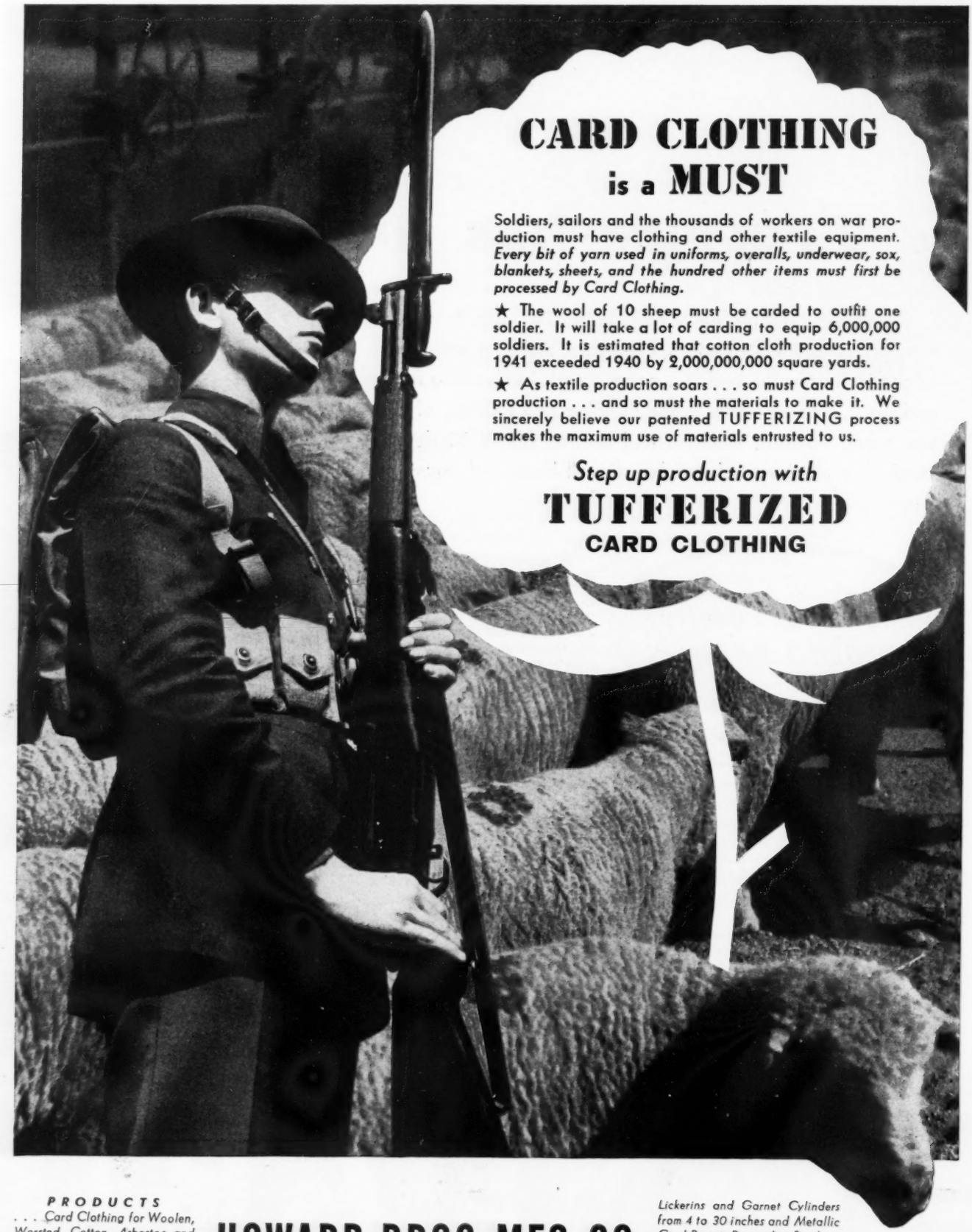
U.S. RING TRAVELER CO.

"A Traveler for Every Fibre"



The Bowen Patented Bevel Edge Travelers

STANDARD TRAVELERS



CARD CLOTHING is a MUST

Soldiers, sailors and the thousands of workers on war production must have clothing and other textile equipment. *Every bit of yarn used in uniforms, overalls, underwear, sox, blankets, sheets, and the hundred other items must first be processed by Card Clothing.*

★ The wool of 10 sheep must be carded to outfit one soldier. It will take a lot of carding to equip 6,000,000 soldiers. It is estimated that cotton cloth production for 1941 exceeded 1940 by 2,000,000,000 square yards.

★ As textile production soars . . . so must Card Clothing production . . . and so must the materials to make it. We sincerely believe our patented TUFFERIZING process makes the maximum use of materials entrusted to us.

Step up production with

TUFFERIZED CARD CLOTHING

PRODUCTS

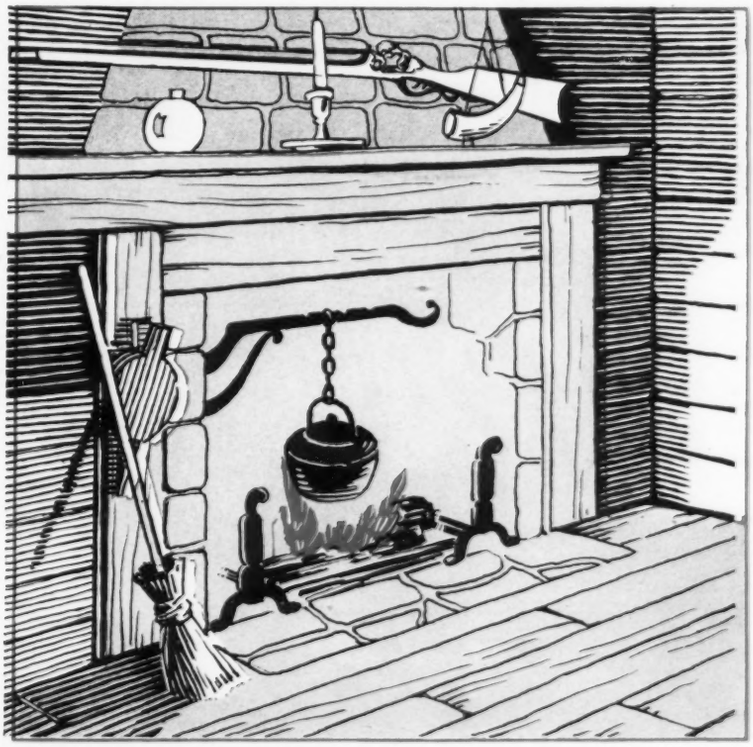
. . . Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants

HOWARD BROS. MFG. CO.

WORCESTER MASSACHUSETTS

Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye and Regular Wire Heddles

Southern Plants: Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Dallas. **Canadian Agents:** Colwool Accessories, Ltd., Toronto 2



Lest we forget...

WITH the machinery of war so much in the headlines, many of us may minimize the importance of our individual contribution to the success of America's War Program. We must not forget that the American spirit has its roots in the home, in our every day lives. Crude Colonial cabins first sheltered the flame that blazed into a free America. Its battles were fought and won by poorly-clad, often ill-fed men whose chief weapons were faith and the muzzle-loading flintlock that rested over every fireplace. Union now with that spirit of America's infancy, will forge the will and might of a great Nation into a certain instrument of Total Victory.

★ ★ ★ ★ ★

INDUSTRIAL SALES DIVISION

A. E. STALEY MANUFACTURING CO.

DECATUR ILLINOIS

ANNOUNCING!

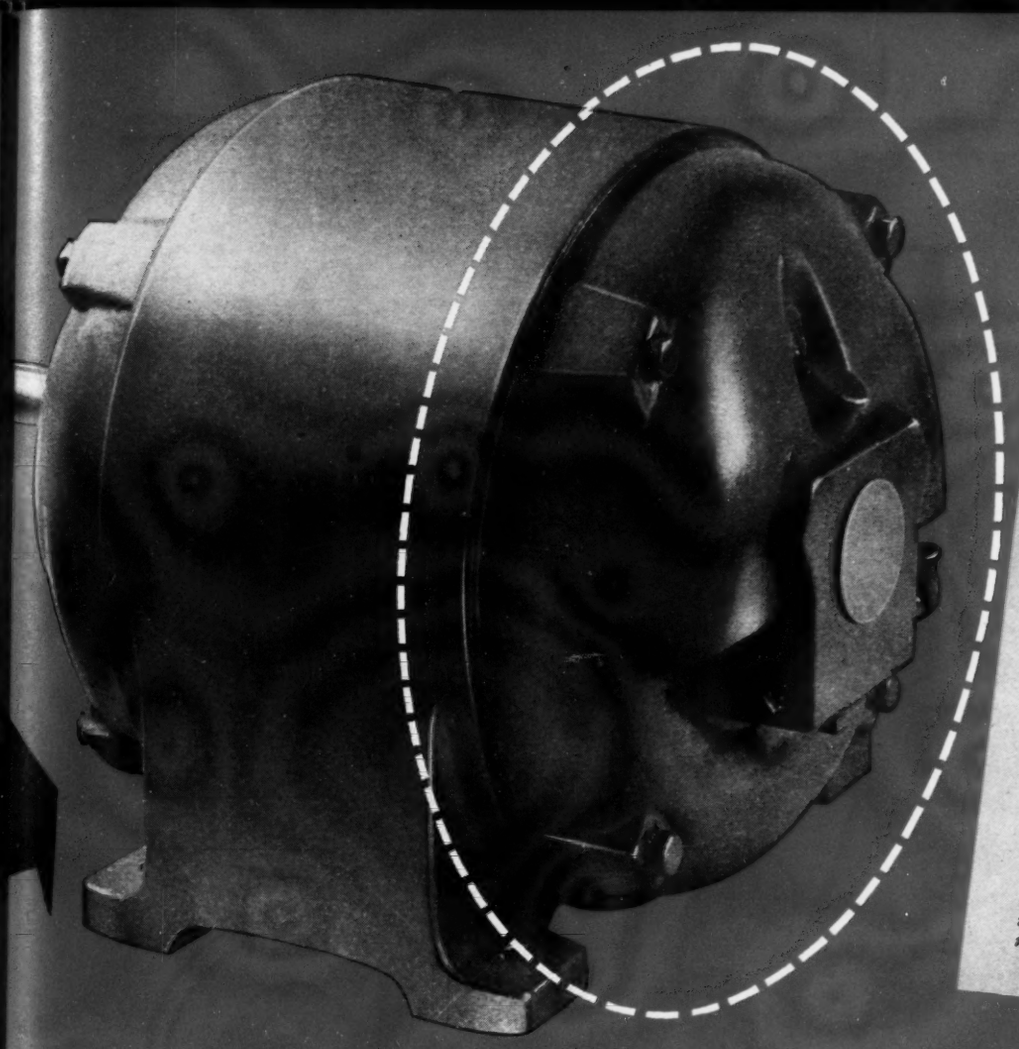
the greatest Motor Improvement in years!

New Design . . . New Construction Give You New Protection You've Never Had Before In A General Purpose Motor!

OUTSIDE . . . INSIDE . . . from bearing to bearing . . . from frame to shaft—Allis-Chalmers now gives you a NEW motor more completely protected — more able to stand the terrific abuse today's production schedules demand.

All the experience of building motors for over fifty years has been concentrated in the development of this advanced product. Specially designed to give your motors "all-around" protection, the new "Safety-Circle" is a wide, solid rib — integrally

ALLIS-CHALMERS LO-MAINTENANCE



SEE HOW "Safety Circle" GIVES YOU PROTECTED ENCLOSURE OF ALL VITAL PARTS

Look at the "broken-circle" design of other motors with exposed undercarriage and incomplete protection. Compare this to "Safety-Circle" construction that guarantees *all-around protection* of vital parts.

Acting as an anchored shock absorber, it gives the entire structure of the motor and all its parts high resistance to blows, knocks, falling objects — keeps your motor in factory-fresh condition for its entire life under normal operating conditions.

To foremen, superintendents, and maintenance men it means more service and smoother operation with less maintenance and lower costs — *more motor for your money* in the Allis-Chalmers way.

NEW ALLIS-CHALMERS LO-MAINTENANCE MOTOR WITH ALL-AROUND "Safety Circle" PROTECTION*

cast as part of the frame — which forms an unbroken circle of protection around the stator. One-piece cast frame and cast end-brackets guard against exterior knocks and abuse.

A more liberal use of electrical materials makes this motor internally and electrically stronger because current and magnetic densities are less extreme. Additional cross strength has been built into the distortionless stator. Rotor is keyed to the shaft for strength, and its outer surface is turned to assure air-gap accuracy and uniformity.

Shorter, stronger bearing design delivers smooth performance with full-flow lubrication and easier maintenance. New machining and production methods make all parts uniform and interchangeable.

Other Lo-Maintenance features of this outstanding NEW Motor are oil drains at the bottom of the bearing box for easy flushing, removable end-brackets and large conduit box for handy wiring.

Write Allis-Chalmers, Milwaukee, Wisconsin, for Bulletin No. B-6210, and test this NEW Motor's design and construction against your own experience! See how it fits your needs . . . then call the engineer in the district office near you!

*Don't confuse this NEW motor with higher-priced motors for so-called special purposes. All the extra advantages of this standard motor are yours *at no extra cost!*

A 1484

MOTOR WITH "Safety Circle" PROTECTION

ONE OF A SERIES *of advertisements designed to keep you posted on Du Pont products and services.*

How Du Pont

DU PONT PRODUCTS FOR THE TEXTILE FIELD

ACIDS	RAYON
NYLON	DYESTUFFS
SOLVENTS	PEROXIDES
SIZING AGENTS	FIRE RETARDANTS
WETTING AGENTS	WATER REPELLENTS
FINISHING AGENTS	CLEANING AGENTS
SCOURING AGENTS	MAINTENANCE PAINTS

DU PONT

REG. U.S. PAT. OFF.

Listen to "Cavalcade of America" every Monday evening over coast-to-coast NBC Red Network.

Chemicals Add *Service* to Service Clothing

THE MOBILIZATION of America is reflected in the increasing demand for work and service clothing. Serviceability is the first consideration, and its importance directs attention to the use of these Du Pont Chemicals that help service garments give more service.

Vat Dyes stand up under sun, perspiration, oil, grease and laundering. They come through the famous "Oil Fields Test"—scrubbing with lye solution and drying with high pressure steam—strong and fresh.

"Zelan"* is Du Pont's long-chain nitrogen complex which imparts a durable, water-repellent, soft finish to cottons, rayons and other fabrics. It provides real protection against rain, non-oily stains and perspiration—even after many washings or dry cleanings.

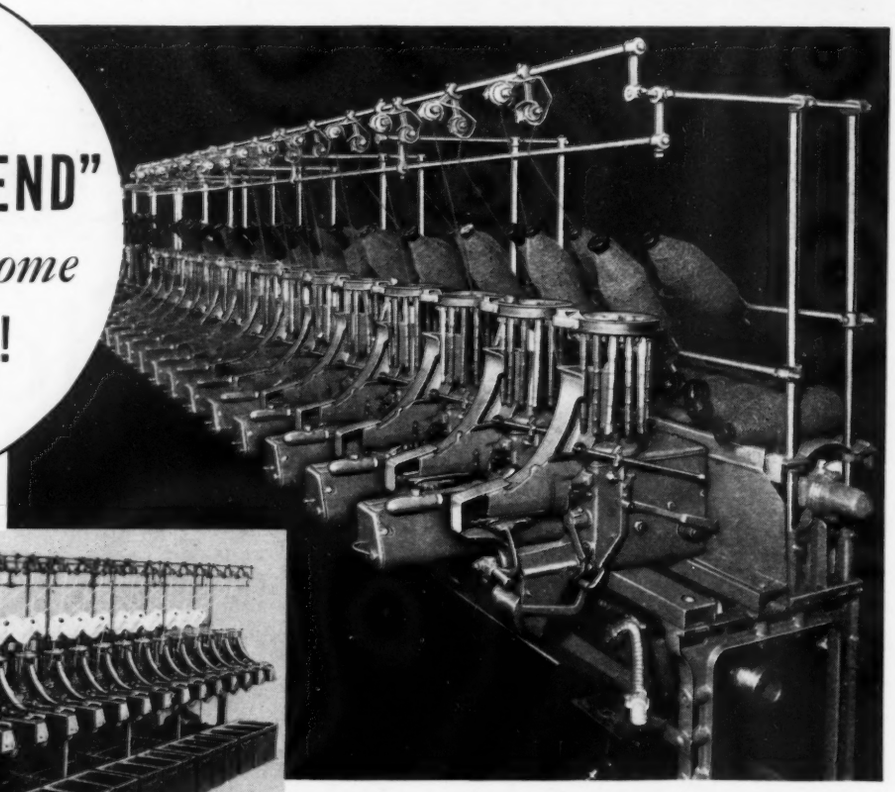
"Aridex"* water repellent gives stain and spot resistance, and water repellency to woolens, worsteds and many other types of fabrics. It permits healthful free circulation of air because it does not coat or seal the cloth. Many laundries and dry cleaners now reprocess garments with this wax type repellent.

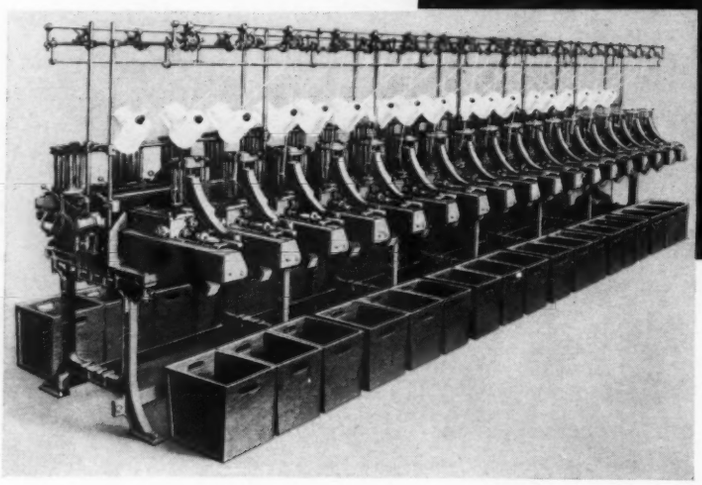
Fire Retardants are easily and quickly applied. They prevent spread of flame and afterglow. *Write for sample swatches.*

E. I. DU PONT DE NEMOURS & COMPANY (INC.)
WILMINGTON, DELAWARE

* Trade Mark
Reg. U. S. Pat. Off.

The "WEAVER'S FRIEND" *finds a New Home in the* U.S.A.!





The Whitin-Schweiter Filling Winder is adaptable to all textile fibers. Units shown here running in Woolen Mill, winding from spools.

Unit adapted to cotton, winding from cones. Uniformity of wound filling is a big feature of this new machine.

FAFNIRS PROVIDE FRICTION-FREEDOM IN THE NEW WHITIN-SCHWEITER AUTOMATIC FILLING WINDERS!

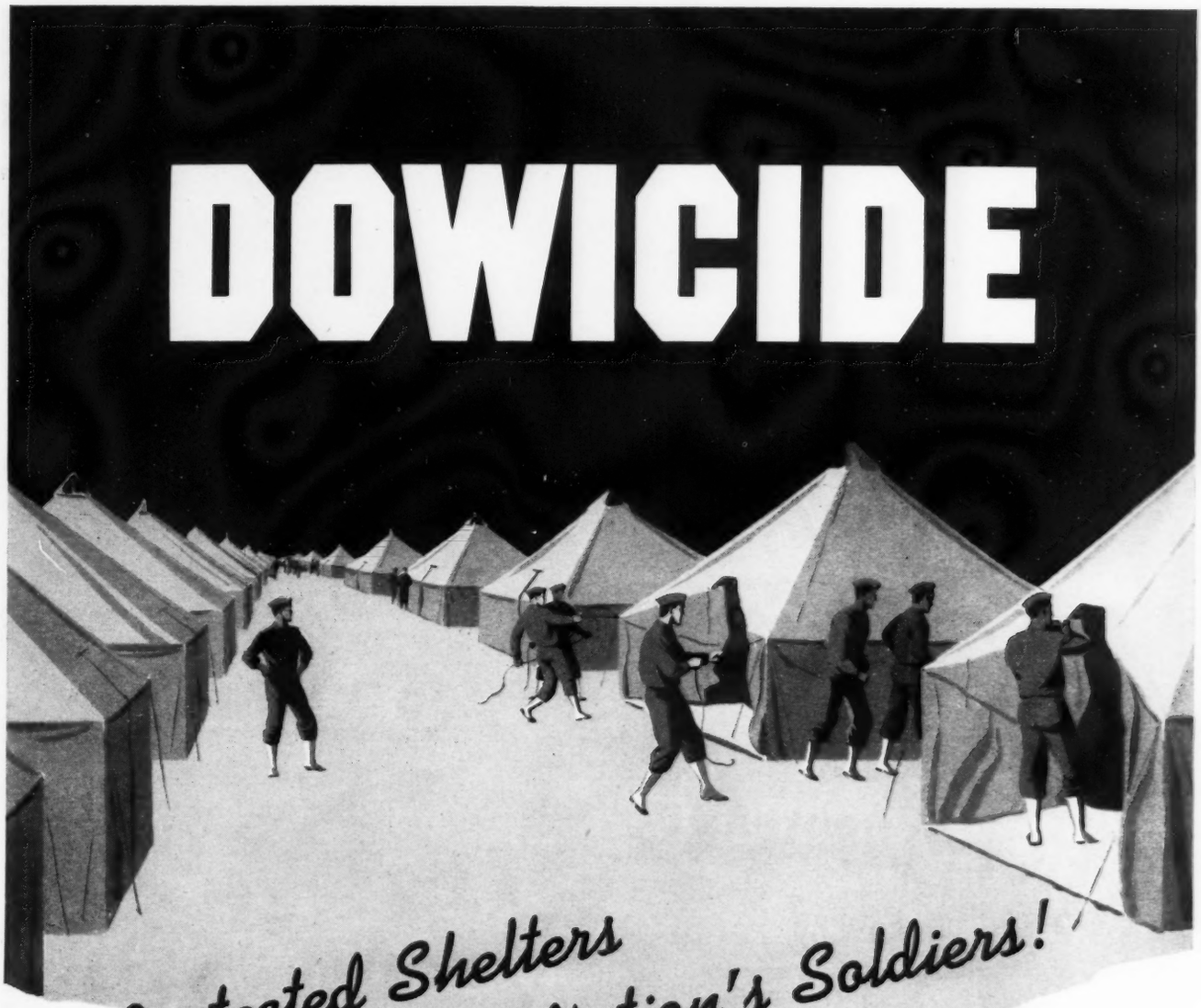
Swiss ingenuity, Whitin engineering knowledge and persistence – and friction-free Fafnir Ball Bearings make a new, completely automatic filling winder available to U. S. textile mills. When War seemed imminent, Whitin went to Switzerland and brought back working models and designs of the Schweiter Automatic Filling Winder. Then Whitin engineers rolled up their sleeves and went to work! Today, the successful Whitin-Schweiter Filling Winder is at work in many of the country's leading textile mills.

This new machine's automatic operation, high-speed efficiency and uniform output is securely guarded by a large number of Fafnir Anti-Friction Ball Bearings: Fafnir Self-Aligning Bearings on the main drive shaft; Fafnir Single Row Radial-Thrust Bearings and Fafnir Extra-Small Radial Bearings in each spindle assembly. The Fafnir Balanced Design means longer life for all three types. The Fafnir Bearing Company, Textile Division, New Britain, Conn. Atlanta . . Birmingham . . Boston . . Charlotte . . Dallas.

FAFNIR *Ball Bearings*

THE BALANCED LINE • MOST COMPLETE IN AMERICA

DOWICIDE



Protected Shelters for the Nation's Soldiers!

AS MEN in unprecedented numbers pour into our armed services, the need for adequate shelter looms as a job of major importance. Tens of thousands of strong, durable tents are required for this purpose.

Of utmost significance is the ability of the fabrics in these tents to ward off the ravaging attacks of mildew. A group of chlorinated phenol derivatives manufactured by Dow and sold under the trade mark DOWICIDE* meets this challenge. These materials, when incorporated in compositions used for finishing all types of fabrics, effectively protect against rot and mildew.

Even in atmospheres of high humidity DOWICIDE is thorough and dependable in inhibiting mold growth. Therefore, longer life and greater service from tents, tarpaulins, etc., is assured. For complete information on DOWICIDE, write to the Dowicide Division.

*Trade Mark Reg. U. S. Pat. Off.

DOW

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • St. Louis • Chicago • Houston • San Francisco • Los Angeles • Seattle

Proper lubrication helps us to keep production up, costs down in the spinning room

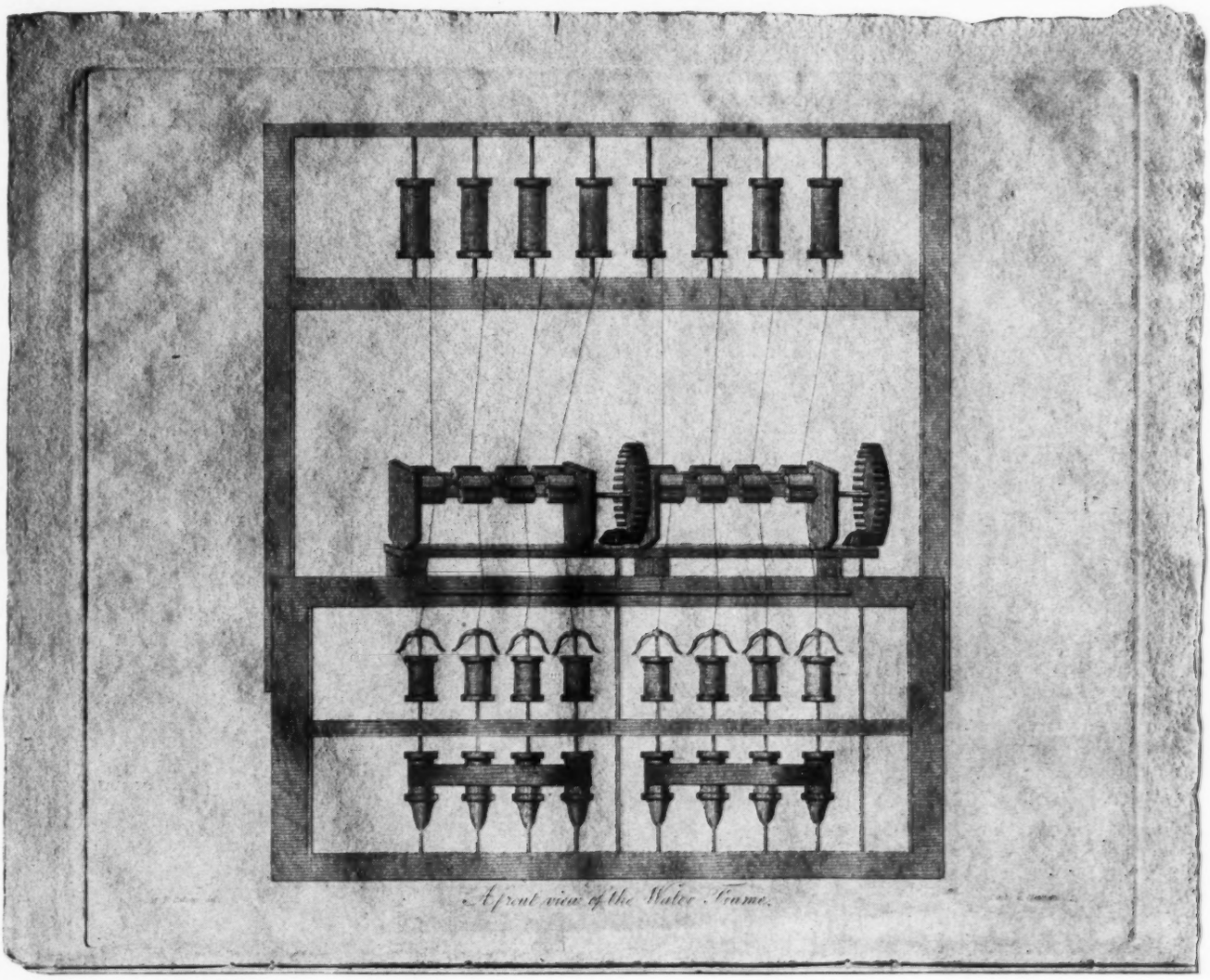
"OWING to stepped up production requirements, we make severe demands on our spinning room equipment," says this Overseer of Spinning. "So we decided to insure efficient operation by using Gulf quality lubricants as recommended by a Gulf engineer. The fine results we have secured have fully justified this step. Our warper stops, for example, have been reduced to a very low figure—so low they're hard to beat."

When you use Gulf higher quality lubricants you are getting the benefit of many years of research and practical experience with lubrication problems by Gulf's large staff of technical men. They have perfected oils and greases which can withstand far greater punishment than modern machines will give them. Thus you are assured of lubricants which possess a margin of protection far beyond average requirements.

Good lubrication—always a necessity for the satisfactory operation of equipment—today is a vital requirement for maximum production. Ask the Gulf engineer who calls at your mill to recommend the lubricants and application methods which best fit your particular requirements. The results will show up in your production and maintenance records. The services of a Gulf engineer—and the Gulf line of more than 400 quality lubricants—are quickly available to you from 1200 warehouses in 30 states from Maine to New Mexico. Write or 'phone your nearest Gulf office today.

GULF INDUSTRIAL LUBRICATION

GULF OIL CORPORATION
GULF REFINING COMPANY
Gulf Building · Pittsburgh, Pa.



Imagine the Surprise of Thomas Highs

IN 1767 THOMAS HIGHS perfected this spinning frame, called a Water Frame, the first completely mechanical device for spinning yarn. If this seems primitive, think back to its predecessor, the hand spinning wheel. This giant stride forward was successful because it introduced a *continuous* movement in the feeding and twisting of the yarn.

Essentially, the history of commercial textile development is simply one of increasing efficiency—of making processes more *continuous*. Reduce starting, stopping, changing, replacing—and you have achieved textile progress.

Imagine the surprise of Thomas Highs if he could but see today's textile accomplishments. Just think how amazed he would be to discover the existence of rayon and the whole new field of fabrics this versatile fibre had developed. Picture his astonishment at the speed and efficiency of modern textile machinery. How he would marvel at the "Continuous Process" that spins, bleaches, treats, dries, and twists yarn as a single thread in one *continuous* operation, a yarn unsurpassed in uniformity and virtually free from knots and broken filaments.

The textile world has come a long way since the days of Thomas Highs. Its advances prove themselves in a time like this, when efficiency is more than ever the watchword of American industry. We know that he would join in our pride in the vital contribution the "Continuous Process" is making in supplying a yarn which is not only produced *continuously* but also, because of its uniformity and cleanliness, runs more *continuously* in the mill.

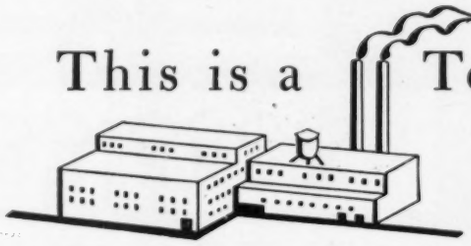
"CONTINUOUS PROCESS" Spun-lo Rayon
Reg. U. S. Pat. Off.

INDUSTRIAL RAYON CORPORATION • Cleveland, Ohio—New York Office, 500 Fifth Avenue

This is a Soldier

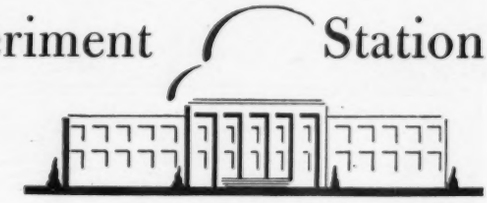
He is one of the millions of those in our services who must be clothed properly.

This is a Textile Mill



Its job is to produce the material to clothe our soldiers, sailors, and marines.

This is the Hercules Experiment Station



Its job is to develop Hercules chemical materials to help industry do its tasks quicker and better. For the emergency demands of the textile industry, it developed Yarmor 302-W Pine Oil.

This is a drop of Yarmor* 302-W Pine Oil

Its job is to help speed the goods through the textile mill. By penetrating the fibers and holding the dirt and grease in suspension for easy rinsing, it saves as much as 30% in the fulling operation—does its stuff, too, in kier boiling and as a dye assistant. And it is saving time in lots more operations—for lots more clothes—for lots more soldiers.

NAVAL STORES DEPARTMENT

HERCULES POWDER COMPANY

Incorporated

903 MARKET STREET • WILMINGTON • DELAWARE

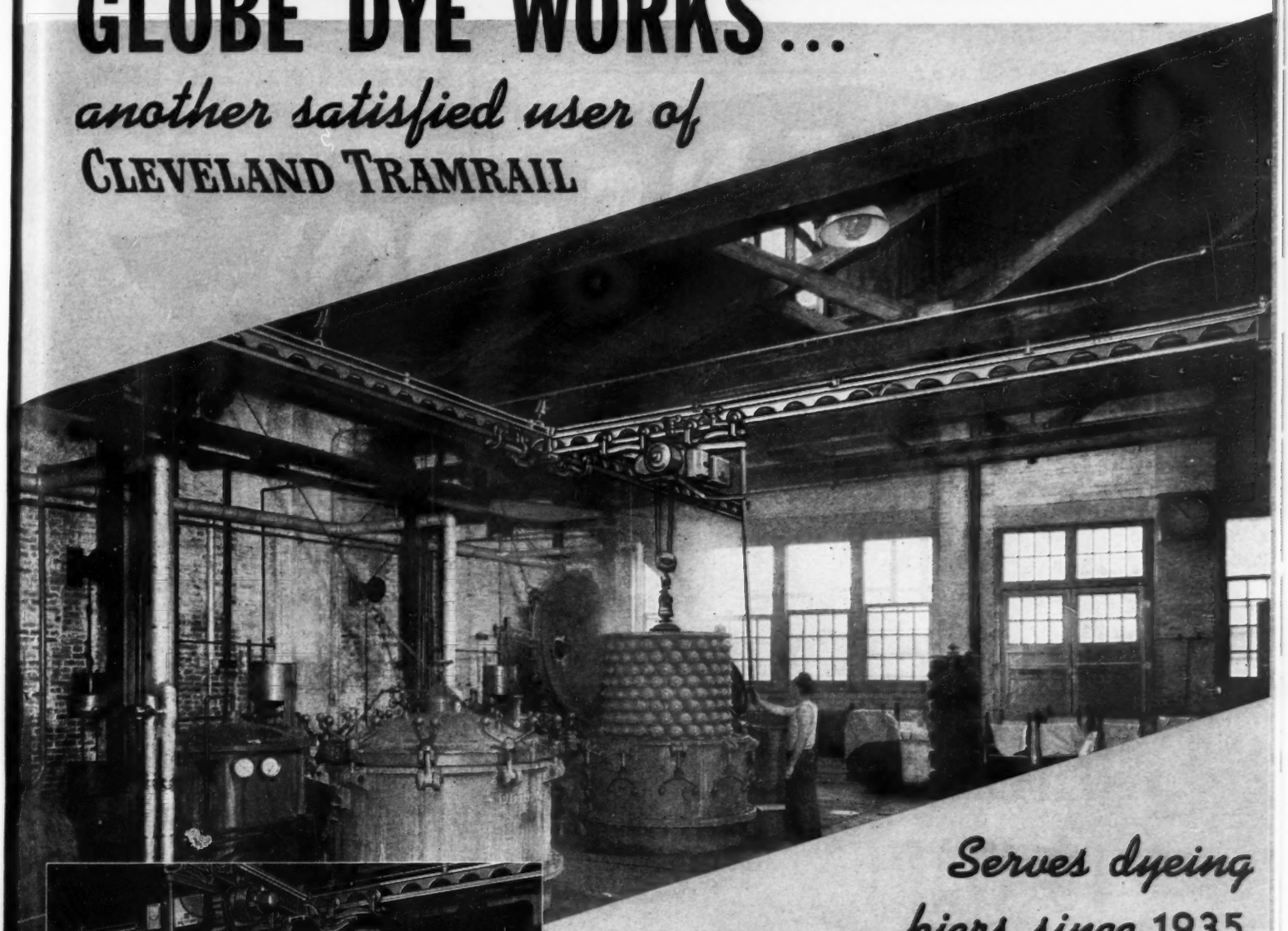
Branch Offices: Chicago • New York • St. Louis • Salt Lake City • San Francisco

00-67

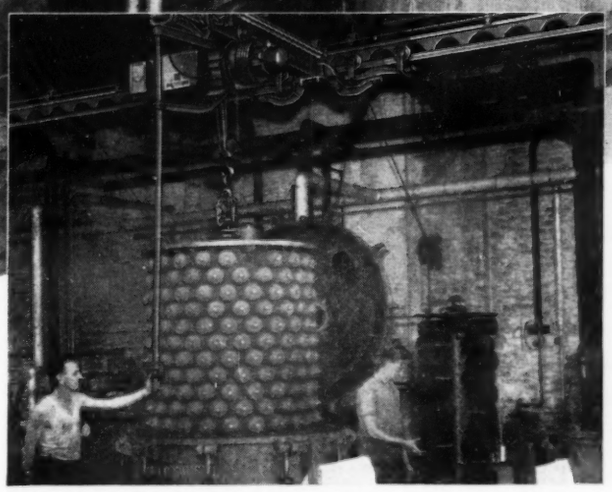
*Reg. U.S. Pat. Off., by Hercules Powder Company

GLOBE DYE WORKS...

another satisfied user of CLEVELAND TRAMRAIL



Serves dyeing kiers since 1935.



One of Cleveland Tramrail type CHEL 4000-lb. low headroom hand-propelled cranes with electric hoist at the Globe Dye Works. The hoist carrier is equipped with a rigid arm and push-button for easy pushing and control of the hoist.

Since 1935 Cleveland Tramrail equipment has served the dyeing machines at the Globe Dye Works, Philadelphia, Pa. Because of the ease of operation of this equipment, less time is required to remove racks of finished yard from the kiers and insert new ones. This means shorter shut-down periods and greater production.

The installation originally consisted of a 4000-lb. hand-propelled crane with electric hoist and a short arch beam runway. This served two 300-lb. and one 100-lb. Butterworth kiers used for the package dyeing of cotton yarn.

Later several more machines were added due to increased production. This necessitated additional overhead handling equipment. Because of complete satisfaction with the original installation, another Cleveland Tramrail crane was added and the runway extended.

Like the Globe Dye Works, thousands of Cleveland Tramrail customers in every type of industry are continually extending their installations because of satisfaction with the original equipment.

GET THIS BOOK!

BOOKLET No. 2008 . . Packed with valuable information. Profusely illustrated. Write for free copy on your company letterhead

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
1175 EAST 283RD ST. WICKLIFFE, OHIO.

MANUFACTURERS OF • CLEVELAND CRANES • CLEVELAND TRAMRAIL • STEELWELD BENDING PRESSE

CLEVELAND TRAMRAIL

OVERHEAD MATERIALS HANDLING EQUIPMENT

BENSAPOL

for scouring and fulling of MILITARY FABRICS

WOOL GOES TO WAR!

FABRICS for America's armed forces—Gabardine, Serge, Elastique, Barathea, Melton, Kersey, Doeskin can be easily and effectively scoured and fulled with BENSAPOL. These types of fabrics require a viscous quality soap with high titre—but heavy soap becomes solid and hard to handle when cold. The addition of BENSAPOL prevents solidifying, simplifies application, assures faster, more thorough penetration. Furthermore, a solution with BENSAPOL retains its body, does not become thin or watery . . . you'll find your tightly constructed fabrics free of mill wrinkles, chafing, whiplashes and welts . . . reduces dead loss. BENSAPOL leaves the fibre in excellent condition for dyeing and all subsequent processes.

BENSAPOL is also highly recommended for SILKS, RAYON and COTTON. It acts as a softener, and gives a better hand.

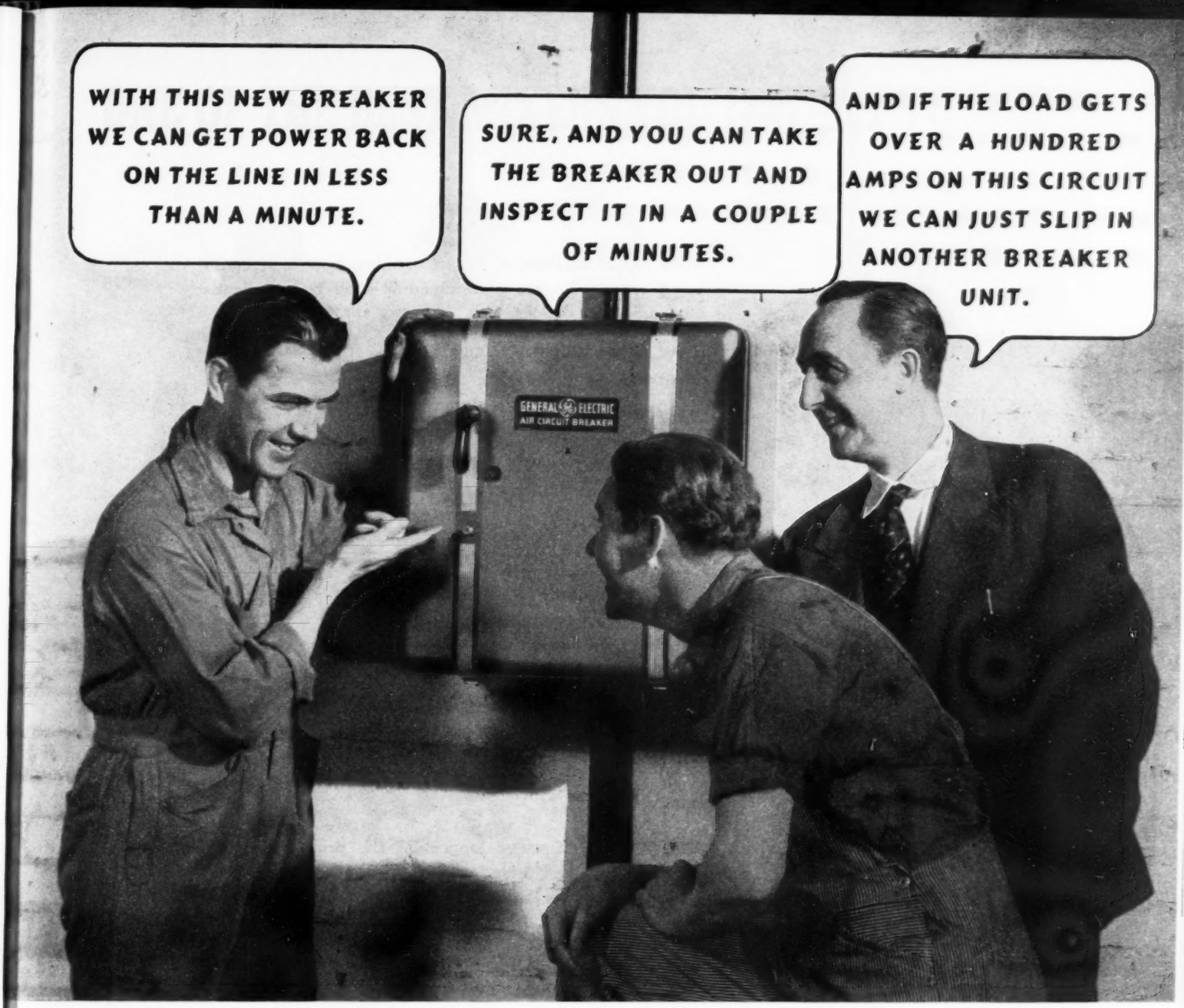
Write today for a generous free sample.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals **PASSAIC, N. J.**

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn., Knoxville, Tenn., Charlotte, N. C., Milwaukee, Wisc., Columbus, Ga.


WITH THIS NEW BREAKER WE CAN GET POWER BACK ON THE LINE IN LESS THAN A MINUTE.
SURE, AND YOU CAN TAKE THE BREAKER OUT AND INSPECT IT IN A COUPLE OF MINUTES.
AND IF THE LOAD GETS OVER A HUNDRED AMPS ON THIS CIRCUIT WE CAN JUST SLIP IN ANOTHER BREAKER UNIT.
GENERAL ELECTRIC
AIR CIRCUIT BREAKER

Here's Why YOU'LL Like This New G-E Removable Breaker

THIS air circuit breaker is built to meet today's demands for quick installation, and dependable protection for continuous production. Its features include a simple ingenious new method of mounting and a convenient, modernized enclosing case, which combine to give you a removable breaker that is easy to install, easy to operate, and easy to inspect.

We call it the *3-minute breaker*. You can re-establish service after temporary faults in less than *one* minute . . . inspect the breaker unit in safety—away from live parts—in less than *two* minutes . . . and where changed load conditions call for a different-rated breaker of the same type, the old unit can be removed and a new one installed in less than *three* minutes.

Give your production, equipment, and personnel complete protection. Install these breakers in lighting, power, and motor circuits —up to 600 volts. They will protect both the circuit wiring and the apparatus connected to the circuit. A new pictorial booklet (GEA-3600) tells where and how to use them. For a free copy, call the G-E office near you, or address General Electric, Schenectady, New York.

GENERAL ELECTRIC

860-20-7500

THE BREAKER WITH THE DISCONNECT FEATURE

WHAT 5¢ CAN MEAN TO YOUR FUTURE

HOW MUCH ALUMINUM we are making now is a censored secret. We are determined it shall be sufficient to the need.

HOW MUCH WILL BE AVAILABLE, after the war, is idle talk now.

THE PRICE OF ALUMINUM is the thing that's important. It is important to the war, because our reduction of the price of ingot from 20c to 15c is saving the Government many millions of dollars a year.

THAT FIVE CENTS doesn't make aluminum one whit more useful for war purposes—only more patriotic.

BUT IT DOES MAKE aluminum terribly important to the peace. Real peace means jobs for all. Jobs-for-all come into being only when people *want to* buy and *can* buy: Which means new things, better things, at a price.

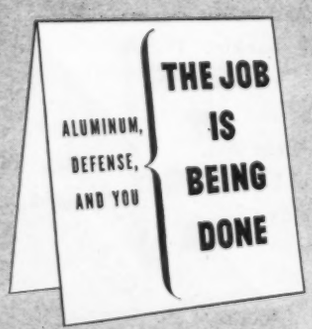
IMAGINEERING is the word we have coined to describe the thinking which is used to get those new things ready. Imagineering is letting your imagination soar and then engineering it down to earth. Imagineering needs tools as well as brains.

THAT FIVE CENTS we've lopped off the price of aluminum, so far, has more potentialities of creating new things and better things, at a price, than any single thing we know of.

THAT'S WHERE YOU COME IN. You are the man *who*. You are the man America is counting on to make the jobs Americans are going to need. You are the man who is going to do the *Imagineering*, in your specialty, that is going to win the place for yourself, your employees, your associates.

YOU ARE GOING TO DO IT, and we hope you are going to let Alcoa help. We can, and we want to.

Aluminum Company of America, 1939 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM

ONE OF THE BEST MIXERS YOU'D WANT TO MEET

The whole textile world is talking about ARALAC—pronouncing it a "mixer" of remarkable versatility. It blends with wool, with mohair, with rayon and with cotton. It combines with hatter's fur. And it produces an amazing variety of new materials—interesting and distinctive in character—satisfying economically, the demands of designers, producers and consumers.

ARALAC brings something new to the textile field because it is a new substance, endowed with qualities individually its own. A protein fibre, just as wool, camel's hair and fur are protein fibres, it is nevertheless as different as each of these is different from the others. ARALAC is itself!

Now, as limitations on the use of wool become a matter of vital concern, ARALAC'S blending properties take on new importance. Possessing the warmth of wool, combining effectively with wool, ARALAC stands ready to help conserve the nation's wool supply!

- **Blends with wool, mohair, rayon, cotton.**
- **Combines with felting furs.**
- **Creates distinctive new fabrics.**
- **Takes dyes beautifully.**
- **Already proving itself in commercial use.**
- **Chemically stabilized.**
- **AND CUTS COSTS.**

★Trade Mark Reg. U. S. Pat. Off.

ARALAC, INC.

Taftville, Connecticut

ARALAC, produced by a division of NATIONAL DAIRY PRODUCTS CORPORATION, represents but one of the many contributions this nation-wide organization is making toward the more efficient utilization of America's agricultural resources.

TOP WARTIME PRODUCTION REQUIRES FIRST CLASS MACHINERY MAINTENANCE

WITH cotton mills running 24 hours a day, six or seven days a week, there is very little opportunity to clean machinery and give it the proper attention, and consequently there will be greater need for overhauling and replacing worn parts. Picking and opening machinery, particularly, requires frequent and careful cleaning on account of the dusty nature of the stock that it handles, and mills which are running around-the-clock will need more picker maintenance than ever before.

While very little new machinery will be available until after the war, old, worn picking machinery can be made to perform as good as new with proper rebuilding. We have specialized in this work for years and are particularly well fitted to rebuild old picking and opening machinery.

We keep on hand for immediate delivery a large stock of repair parts for pickers. A telegram or telephone message, in an emergency, will generally have the needed picker part at the mill within 24 hours from the time you call or wire us.

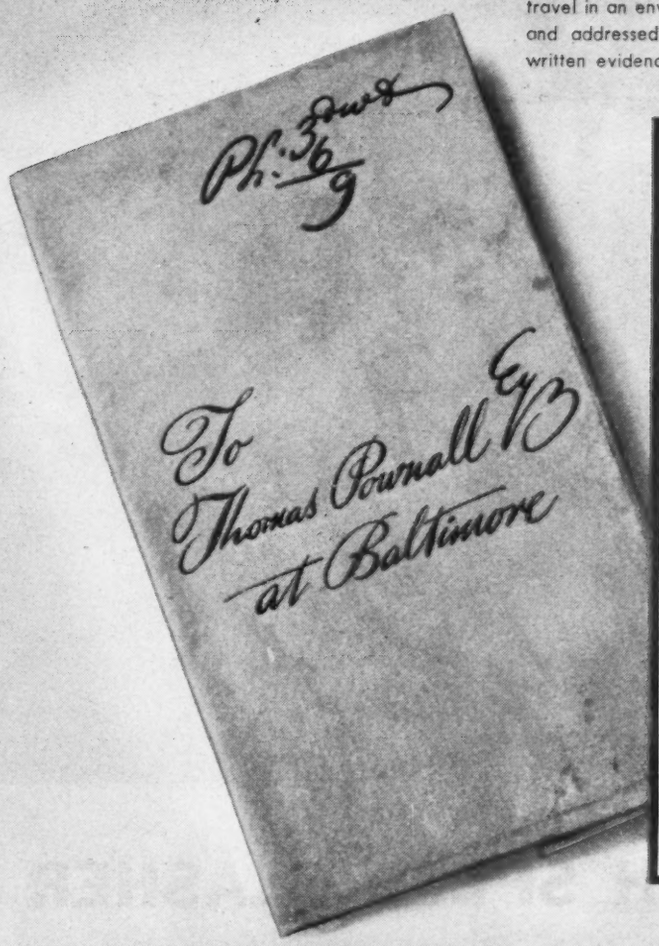
At this time we suggest that you check your stock room and see that a reasonable quantity of picker repair parts are in stock, since a picker failure can often shut down more other machinery than the failure of almost any other equipment.

We can not only take care of your needs for supplies, but can often rearrange existing equipment to produce better work.

AldricH MachinE WorkS

Greenwood, South Carolina

A typical letter of Franklin's time. It did not travel in an envelope, but was merely folded and addressed. Instead of a stamp, it bore written evidence that the postage had been paid.



For the textile industry Penn Salt makes

CAUSTIC SODA • HYDROGEN PEROXIDE
BLEACHING POWDER • CHLORINE
SULPHURIC ACID • HYDROCHLORIC ACID
CARBON BISULPHIDE
AMMONIUM PERSULPHATE
ANHYDROUS AND AQUA AMMONIA

"PHILADELPHIA TO BALTIMORE IN TWO DAYS! . . . INCREDIBLE, MR. FRANKLIN"

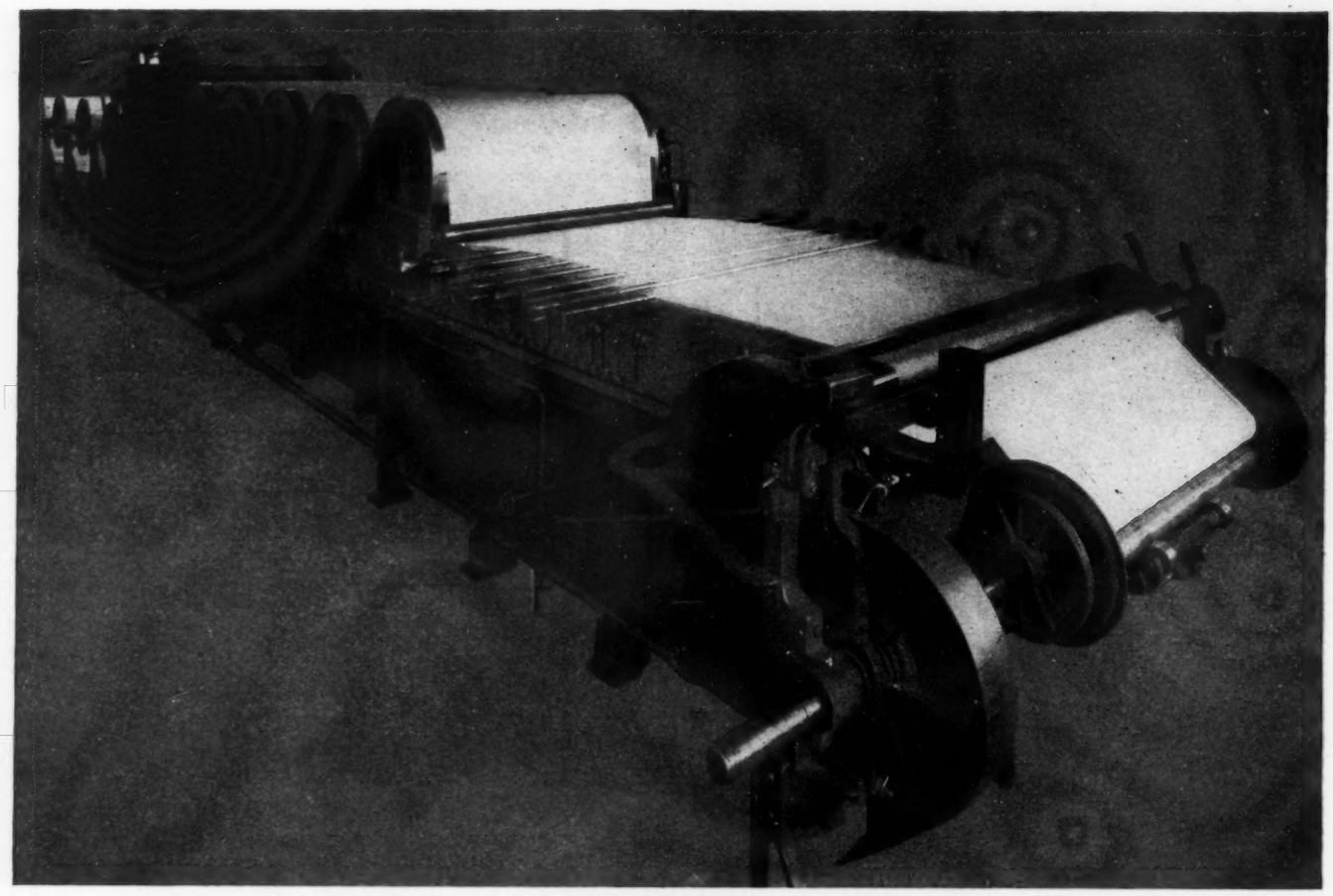
FOR twenty-one years before the Revolutionary War, Benjamin Franklin was deputy postmaster general of the American Colonies. It was he who first put the postal service on a paying basis. He did so by increasing the number and speed of riders . . . by measuring the post roads and marking them accurately with milestones . . . by careful attention to details.

In business, attention to the little things is tremendously important. Penn Salt's scrupulous care with details enables it to manufacture improved chemical products . . . helps its technical representatives to solve troublesome problems for customers . . . makes its nation-wide sales organization efficient. Yes, emphasis on "tremendous trifles" underlies Penn Salt in all its activities.

PENNSYLVANIA SALT MANUFACTURING COMPANY
1850 *Chemicals* 1942
1000 WIDENER BUILDING, PHILADELPHIA

CHEMISTRY IS THE KEYSTONE OF INDUSTRY

BRANCH OFFICES: NEW YORK • CHICAGO • ST. LOUIS • PITTSBURGH • WYANDOTTE • TACOMA
PLANTS: Philadelphia • Easton • Natrona • Wyandotte • Tacoma • Portland, Ore.



COCKER HIGH SPEED SLASHER FOR COTTON YARNS

Illustrated is the New Cocker Nine Cylinder High Speed Slasher for Cotton Yarns.

Machine has 30" diameter Cylinders with Rotary Packless joints, Graduated Drive permitting speed changes without over-run on Beams or strain on yarn. Patented Automatic Friction Control—Finger Tip Tension Control—Syphon Condensate removal with Individual Traps on each Cylinder. Heavy Vibration Eliminating Frames. Counter Clocks for instant Stretch Calculations—Cut Marker—Cut Marker Indicators —Speed Tachometers—Combs and Comb adjustments—Motor and Steam fittings.

For better weaving Warps made efficiently and economically use COCKER WARP PREPARATION EQUIPMENT

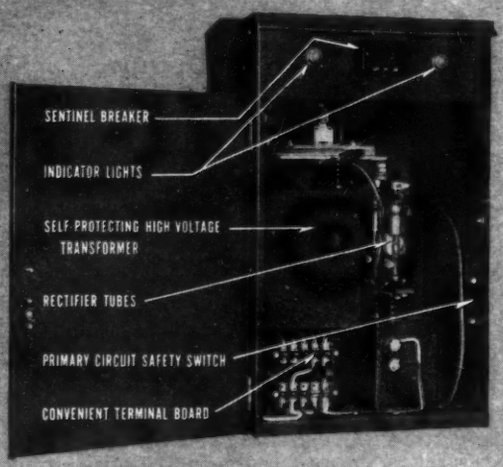
COCKER MACHINE & FOUNDRY COMPANY
GASTONIA **NORTH CAROLINA**

PRECIPITRON* CLEARS THE AIR FOR TEXTILES

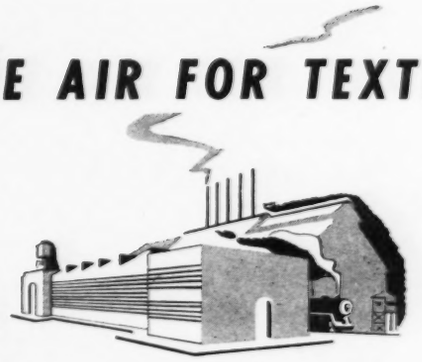
An electrostatic field at the front of the PRECIPITRON cell charges all dust and dirt particles as they enter.

Charged dirt and dust particles are drawn to and precipitated on the collector plates.

One or more PRECIPITRON cells, depending on the volume of air, are sealed in the ventilating duct so all air passes through them. From 85 to 90% of the particles in the air, even as small as 1/250,000 of an inch, are removed.



The PRECIPITRON power pack provides d-c voltage to set up an electrostatic field at the leading edge of the cell and also to energize the collector plates. It is listed by the Underwriters' Laboratories and has special built-in safety devices as protection against electrical shock.



PRECIPITRON—the Westinghouse electric air cleaner—is releasing the Textile Industry from the damaging effect of soot, smoke, dirt and dust. To assure clean, streakless yarn and cloth, it is being used alone as an air cleaner or as the cleaning component of an air conditioning system.

The principle of PRECIPITRON is entirely different from that of an ordinary air filter. It operates by electricity. Dust and dirt particles in the air stream are given an electric charge and then drawn off to oppositely charged plates.

PRECIPITRON has no moving parts. Its operation is silent and simple. Resistance to air flow is negligible and for all practical purposes remains constant in operation. It has been tested against fire hazards and is listed by the Underwriters' Laboratories.

Today electric air cleaning is effectively at work in many textile mills where cleaning efficiency counts—where it is essential to prevent tiny, unseen particles from streaking and damaging yarn during winding and drying operations.

Your nearest Westinghouse Sales Office has full information on the application of PRECIPITRON. Or, you may write Westinghouse Electric & Manufacturing Company, Edgewater Park, Cleveland, Ohio, for Folder F-8608.

*Trade-mark registered in U. S. A.

Westinghouse Precipitron

Start at Normal Speed

PAWTUCKET RINGS

Vitritex FINISH

Require no breaking in

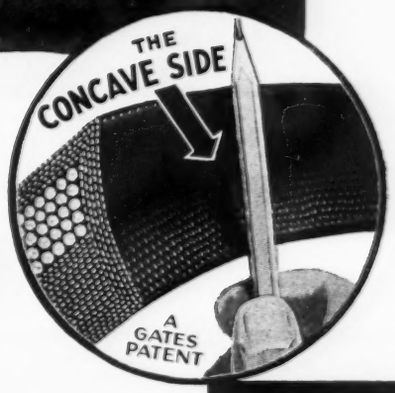
There are no unusual precautions to observe when you install Pawtucket Rings. Production can be maintained at normal speed from the moment they are put into service. There are no delays—and no "take it easy" breaking-in periods. This is possible because of the Vitritex Finish—an exclusive manufacturing process which gives the rings a surface as hard as steel, as smooth as glass and almost impervious to wear.

We will be pleased to arrange a trial installation, or if you prefer, furnish sufficient samples without cost for your own test purposes.

GIVE YOUR TRAVELERS "A TURN FOR THE BETTER"

Pawtucket SPINNING RING COMPANY • CENTRAL FALLS, RHODE ISLAND

(Subsidiary of Saco-Lowell Shops)



Make This Simple Test

It Will Show You A REAL SAVING *in Belt Costs!*

As a V-belt bends, you can actually feel its sides change shape! The top of the belt is under tension and grows narrower (see Figure 1, at right). The bottom is under pressure—therefore it widens. These stresses force a straight-sided V-belt to bulge in the sheave groove (Fig. 1), and this produces uneven wear on the belt sides, resulting in shorter life!

Now look at Figure 2. There you see how the concave side of the Gates Vulco Rope exactly corrects this bulging. It insures a perfect fit in the sheave groove with uniform side-wall wear and, therefore, longer life! It insures that the entire side-wall grips the pulley—heavier loads are carried without slippage—belts are saved and power consumption reduced.

Only belts built by Gates are built with the Concave side, which is a Gates patent.

What Happens When a V-Belt Bends

FIG. 1

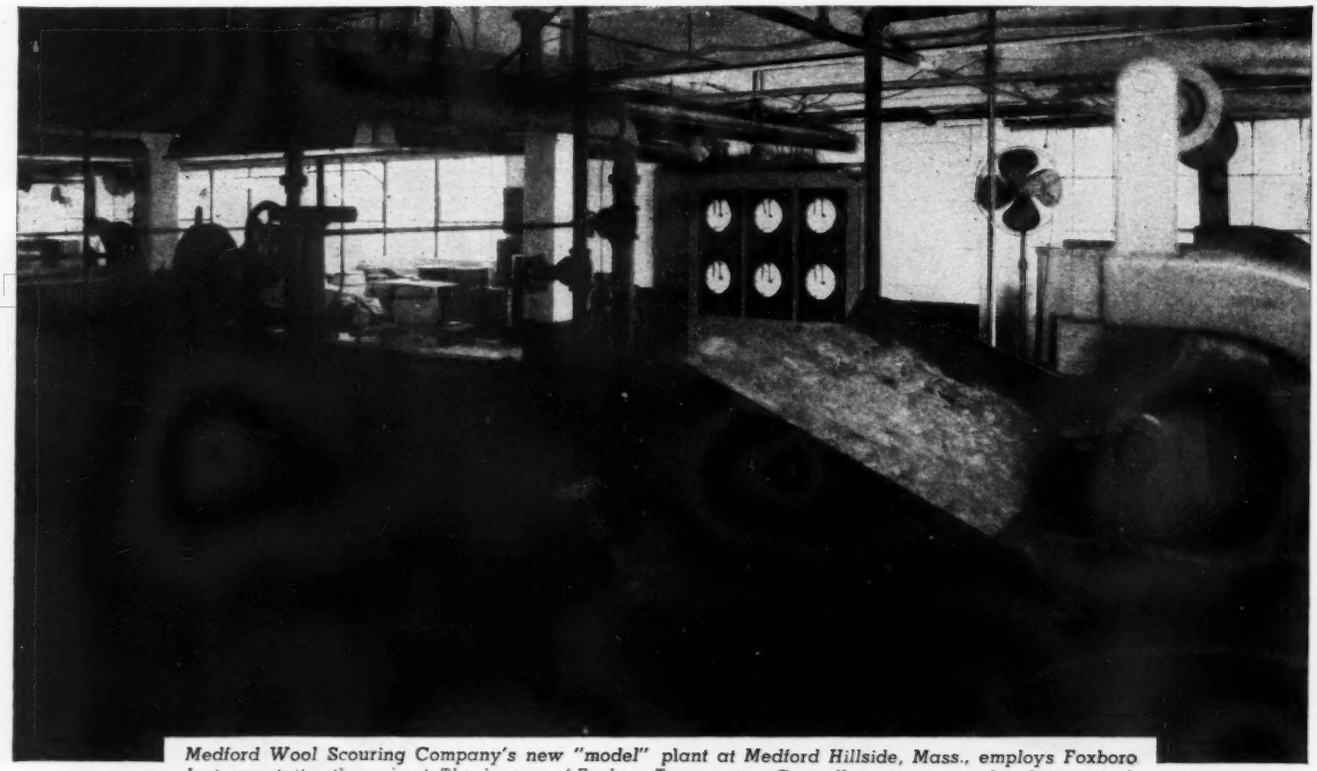
FIG. 2

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

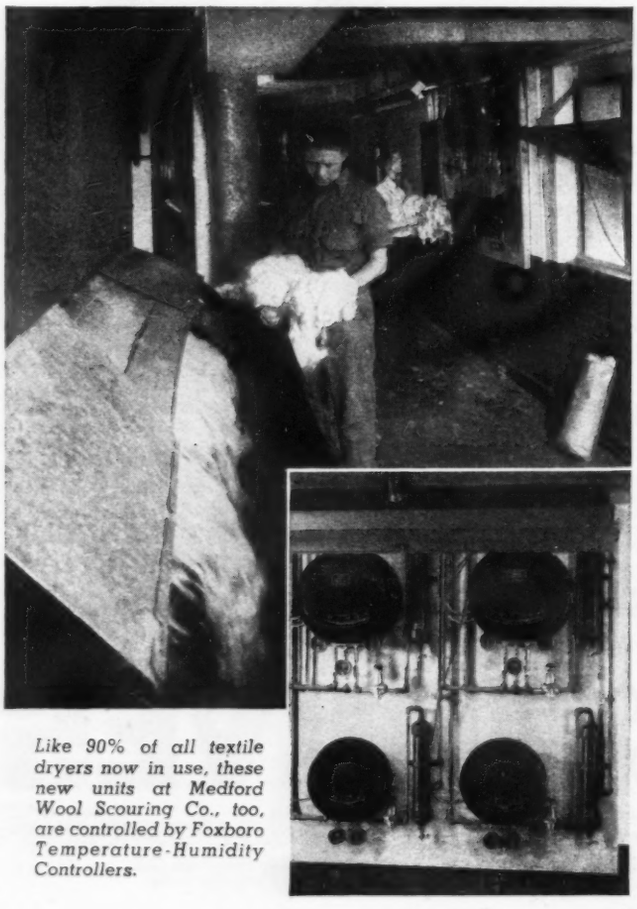
GATES VULCO ROPE DRIVES

Chicago, Ill. 549 West Washington
New York City 215-219 Fourth Avenue
Birmingham, Ala. 405 Liberty National Life Bldg.
Los Angeles, Cal. 2240 East Washington Blvd.
Denver, Colo. 999 South Broadway
Dallas, Tex. 2213 Griffin Street
Portland, Ore. 333 N. W. 5th Avenue
San Francisco, Cal. 2700 16th Street



Medford Wool Scouring Company's new "model" plant at Medford Hillside, Mass., employs Foxboro Instrumentation throughout. This battery of Foxboro Temperature Controllers on scouring bowls is typical.

It Doesn't Come In Packages!



Like 90% of all textile dryers now in use, these new units at Medford Wool Scouring Co., too, are controlled by Foxboro Temperature-Humidity Controllers.

There's more to *correct instrumentation* of textile processes than just an instrument in a package! It takes "knowing how", as well . . . intimate knowledge of mill problems plus long experience in *applying* instruments to solve them.

Foxboro Instrumentation for textile mills is engineered by men who know cotton, rayon and woolen processing from the bottom up. More than 15 years ago, they recognized long-standing problems in textile drying, and solved them by originating the faster, safer practice of controlling *both* humidity and temperature in dryers.

Similarly, their first-hand experience showed the need for closer, more economical temperature control in batch-processing. As a result, these men developed Foxboro On-Off Controllers . . . the simplest, most positive of their type.

These are merely typical examples of Foxboro Creative Engineering. Write for details of the process instrumentation you require. **The Foxboro Co., 18 Neponset Avenue, Foxboro, Mass., U. S. A.** Branches in principal cities of U. S. and Canada.

FOXBORO

Reg. U. S. Pat. Off.

Creative Instrumentation

DU PONT

REG. U. S. PAT. OFF.

PAINT CONSERVATION PLAN

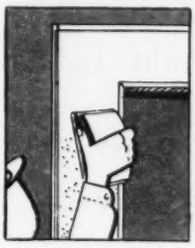
MAKES PAINT LAST LONGER AND GO FURTHER

WHEN all industry faces shortages of materials, ***don't waste paint.*** Make every brushful count—to reflect more light, to keep factories cleaner, to protect plant investment.

Use paint economically, repaint less frequently—that's how you can conserve paint for America's tanks and planes and ships. Here is a plan Du Pont chemists worked out to help you improve your painting technique and increase the "mileage" of your paint jobs. Regardless of the paint you use, these six points will help you get more from your paint, cut waste, provide better seeing and better protection, save time and money.

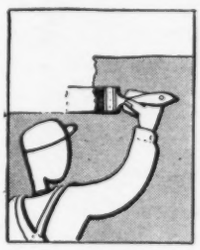
Each of these six points is only briefed here and will be elaborated in subsequent ads in this publication. Watch for these ads.

1. PREPARE SURFACES PROPERLY...



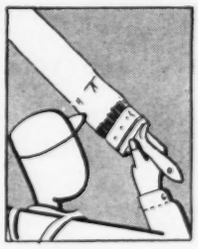
Don't waste paint by spreading it over damp, dusty, greasy, rusty, scaly surfaces where it can't take hold. Repair, sand and cleanse ***before*** painting. Test plaster and masonry for alkalinity with litmus paper. Spot prime, where possible, to save complete priming coat.

2. IMPROVE APPLICATION METHODS...



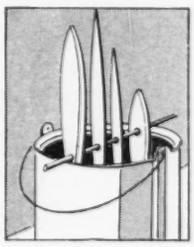
Save paint by applying paint at correct temperature and film thickness. Painting when too hot causes runs, sags, curtains, often results in a film too thin for protection. Too cold a film means hard brushing, produces too thick a film, wastes paint, labor.

3. USE FEWER COATS, IF POSSIBLE...



When repainting, one coat may suffice if you use the same or a darker color. Touch up window sills, door jambs, worn places first . . . then one over-all coat may do the job. Tint undercoats to about the finish color; imperfections won't show as readily.

4. TAKE PROPER CARE OF PAINTS AND BRUSHES...



Pour "left-over" paints of same type together, strain and use. Save thinners, too. Make one man responsible for keeping, cleaning and storing brushes so paint won't harden in them. Bore holes in brush handles and hang them in solvent.

5. WASH FREQUENTLY...

Washing with soap and water or a non-caustic commercial detergent often provides as much cleanliness and light reflection as a new paint job. It is easy to wash paint. Use clean cloths or sponges and rinse with warm water.

Washing saves paint and costs less.

6. INSPECT PAINTED SURFACES OFTEN...

Protect the danger zones—window sills, columns, corners. A brushful of paint applied in time may postpone a big repaint job. Use hoods and ventilators to avoid discoloration from chemically laden steam, soot and dust.

LOOK FOR DETAILED DISCUSSION IN ADS TO FOLLOW

LET'S GET TOGETHER ON PAINT CONSERVATION

▶ **Du Pont chemists, maintenance engineers, field representatives and outside authorities have pooled their experience to create this conservation plan—to make it as practical, all inclusive and effective as possible. Perhaps you, too, have other good suggestions and useful "short cuts"? We'll appreciate your telling us about them so we can pass such information to others and help them save paint and labor for today's urgent needs.**

Committee on Paint Conservation

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington, Delaware

Pat'd and Pats. Pending

UNBRAKO

SELF-LOCKING HOLLOW SET SCREWS

with the Knurled Points

Save Time for Loom Fixers — *and Avoid Interrupted Production Flow*

Many textile mills are finding that the use of "Unbrako" Self-Lockers saves considerably in maintenance costs and delays caused by ordinary set screws failing to hold tight.

Tightened up as usual, these Knurled "Unbrako" Screws dig in for the duration and stay locked no matter how severe the vibration or number of applications.

A sample order will convince you . . . try it.

"UNBRAKO" WELT BAR SCREWS

Uniformly strong and accurate, *"Unbrako"* Welt Bar Screws insure extra satisfaction in many a mill. Ask for samples of these.

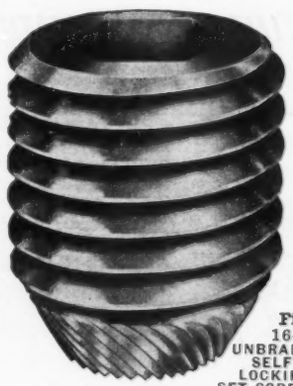


Fig. 1645 UNBRAKO SELF-LOCKING SET SCREW

You can aid prompt deliveries by ordering standard "Unbrako" sizes. Our catalog will show you. Send for a copy.

The KNURLING of Socket Screws originated with "UNBRAKO" years ago.

STANDARD PRESSED STEEL CO.

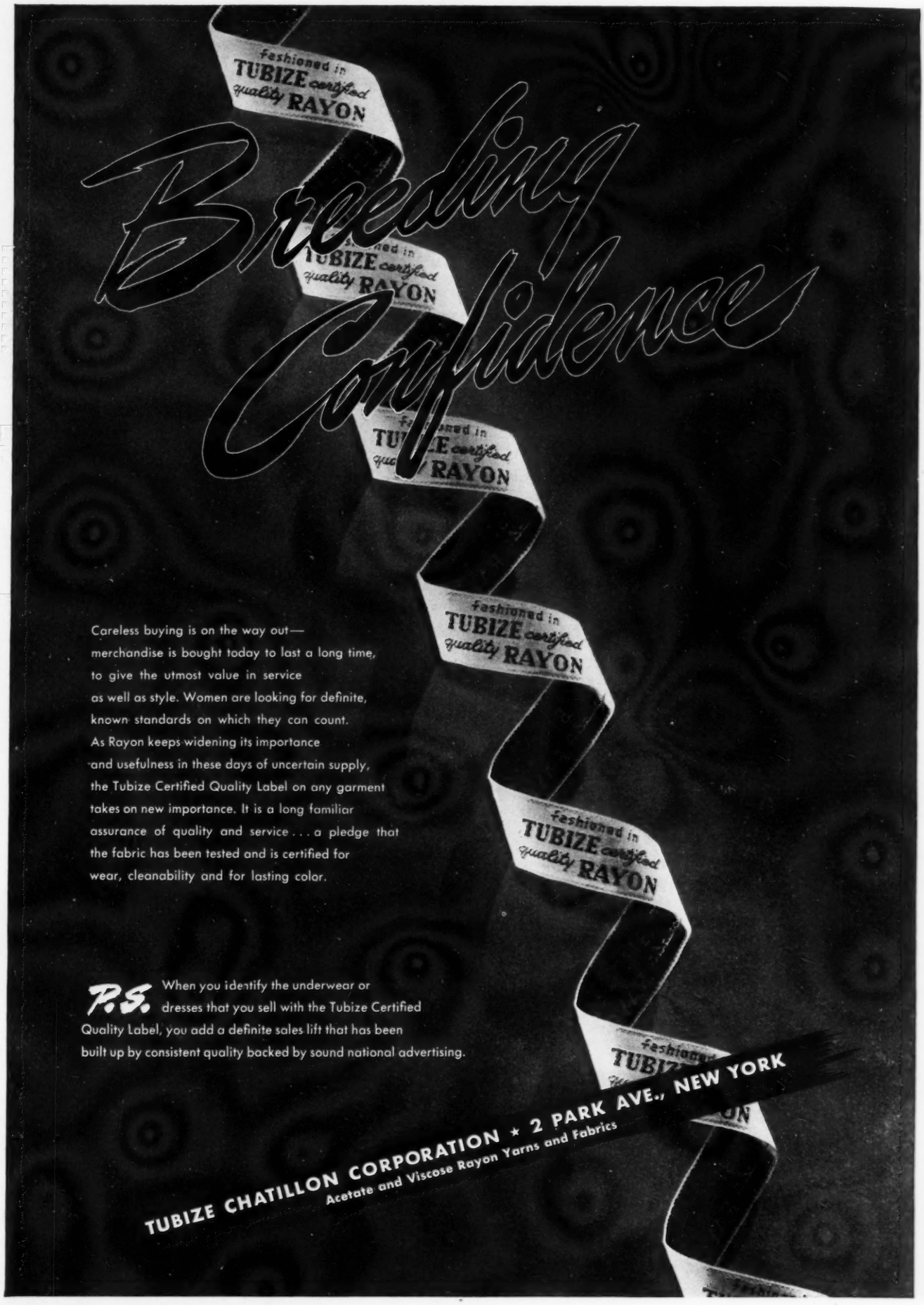
JENKINTOWN, PENNA. BOX 582

— BRANCHES —

BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

Reg. U.S.Pat. Office

UNBRAKO *Screw Products*


Breeding Confidence
fashioned in TUBIZE certified quality RAYON
Careless buying is on the way out—
merchandise is bought today to last a long time,
to give the utmost value in service
as well as style. Women are looking for definite,
known standards on which they can count.
As Rayon keeps widening its importance
and usefulness in these days of uncertain supply,
the Tubize Certified Quality Label on any garment
takes on new importance. It is a long familiar
assurance of quality and service . . . a pledge that
the fabric has been tested and is certified for
wear, cleanability and for lasting color.
P.S. When you identify the underwear or
dresses that you sell with the Tubize Certified
Quality Label, you add a definite sales lift that has been
built up by consistent quality backed by sound national advertising.
TUBIZE CHATILLON CORPORATION ★ 2 PARK AVE., NEW YORK
Acetate and Viscose Rayon Yarns and Fabrics

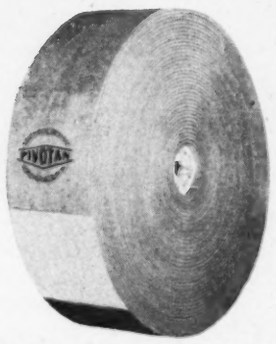
NIGHT LIFE

IS TOUGH ON EQUIPMENT!

● The *third shift* is the one that plays hob with machinery and equipment, yet the Government has called for a 24-hour day, seven-day week, to further speed up production for our war effort.

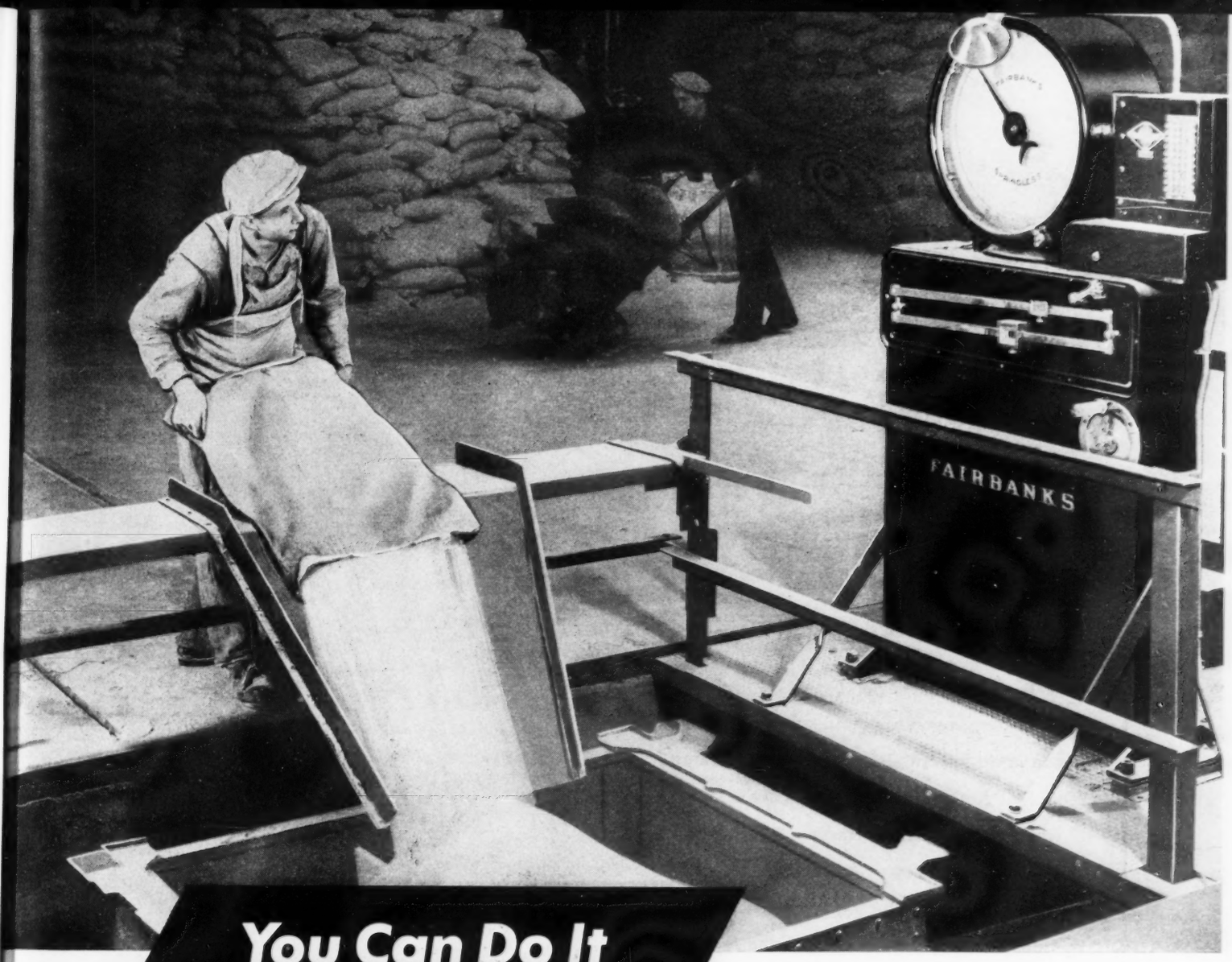
You can insure greater sustained production by using PIVOTAN leather belting. PIVOTAN is a brand-new *type* of belt, starting with a new tanning formula and manufactured under rigid laboratory control. It is specially designed to withstand the extreme speed and rapid flexing imposed on short-center drives, and the hard wear of continuous operation on any drives.

PIVOTAN is made under "Complete Control—from Hide to Roll" by the Southern Belting Company, Atlanta.



PIVOTAN

Rapid Flexing **LEATHER BELTING** Long Wearing



To speed compounding of materials, this Fairbanks Dial Scale was built into a charging car which travels in a pit. At the touch of a button the Printomatic gives an accurate printed record of each batch.

You Can Do It FASTER with MODERN SCALES

● Rare is the weighing job which can't be done faster and more precisely with today's vastly improved scales. These scales *print* weight records more quickly than a man can read and write them. They *eliminate human errors.* They weigh while materials are *on the move.*

But—important as those advantages are—don't dismiss modern scales as nothing more than better weighing instruments. For scales have assumed amazing *extra* functions which often speed production surprisingly. They *count* small parts and products. They furnish weight records for accounting and inventory control. They weigh and disburse preset amounts *automatically,* and can keep ingredient proportions *secret!*

WE WANT TO HELP YOU

We are anxious to do everything we can to help speed American production. Possibly our scale engineers could suggest new and more efficient applications of scales in *your* plant, or modifications of your present scales to attune them to today's tempo. Write Fairbanks, Morse & Co., Dept. C208, 600 S. Michigan Ave., Chicago. Branches and service stations throughout the United States and Canada.

FAIRBANKS·MORSE FAIRBANKS SCALES **SCALES**

DIESEL ENGINES ELECTRICAL MACHINERY MAGNETOS RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS FAIRBANKS SCALES WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

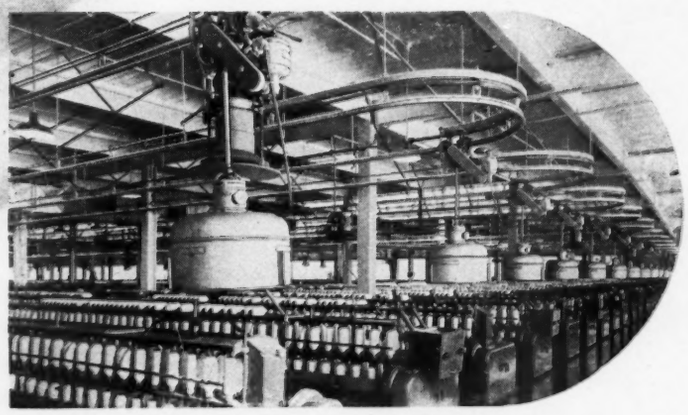
Controlled Cyclonic Cleaning

KEEPS MACHINES PRODUCING FULL TIME

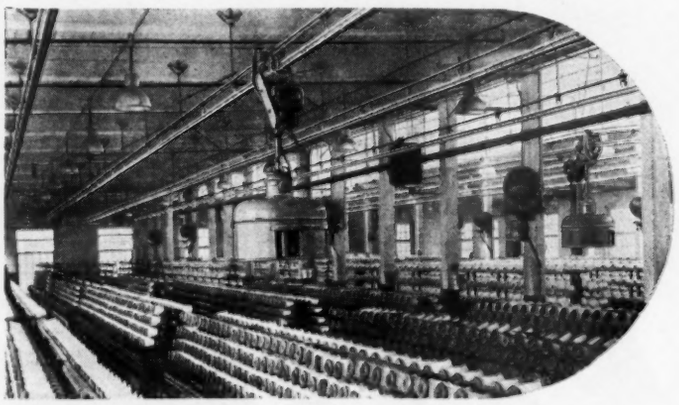
Swirling Column of Air Prevents Lint Accumulation with no Damage to Roving

NOW more than ever before it is necessary to keep machines going at top speeds. There is no lost production when American MonoRail Automatic Overhead Cleaners are at work over spinning, winding, twisting and warping machinery. Automatic cleaning keeps machines producing full time, enables operators to increase their output and reduces the number of gouts or bunches in the yarn.

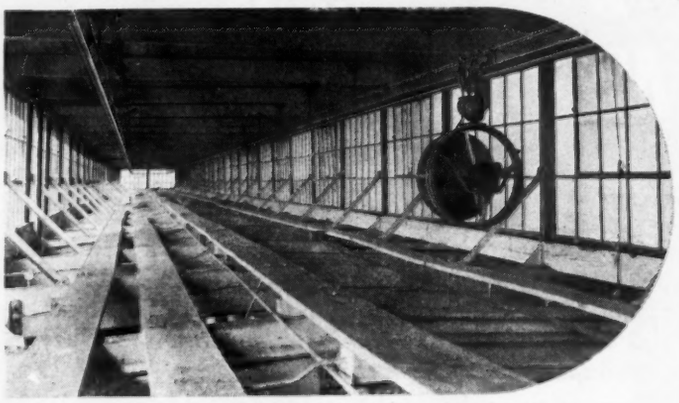
Let an American MonoRail Engineer explain such advantages as better running work; fewer gouts or bunches; less endsdown; spinners handle more sides; lower cleaning costs; no lost production and reduced machine stoppage. This information will be gladly given without cost or obligation on your part. Write us today; we will immediately send you copy of book describing Automatic Cleaning and Overhead Handling in the Textile Industry.



★ Overhead automatic cleaners over long draft spinning frames.



★ Swirling columns of air circulate around cones to prevent lint accumulation.



★ High volocity fan travels within the monitor to keep this section clean.

THE AMERICAN MONORAIL CO.

OVERHEAD HANDLING EQUIPMENT

13106 ATHENS AVENUE — CLEVELAND, OHIO

MAR 23 1942

MARCH, 1942
Volume 106 Number 3

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COTTON
SERVING THE
Textile Industries

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Size 1

"I'm 'on'
I'm 'off'
I'm 'tripped'"

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WESTINGHOUSE "De-ion" LOOM SWITCH FOR A-C MOTORS UP TO 7½ HP

No question with the "De-ion" Loom Switch whether it is "ON" or "OFF," or whether an overload has caused it to trip and disconnect the motor. ALL THREE circuit conditions—"ON"—"OFF"—or "TRIPPED"—are clearly indicated by the handy toggle switch.

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J-21200

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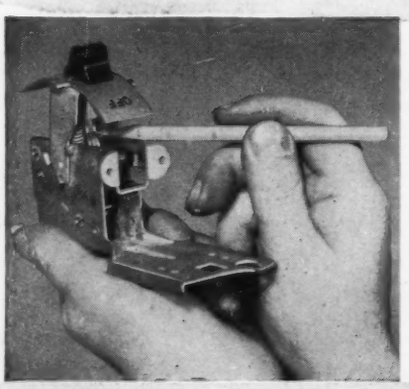

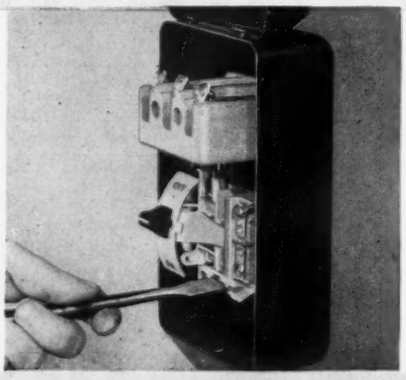

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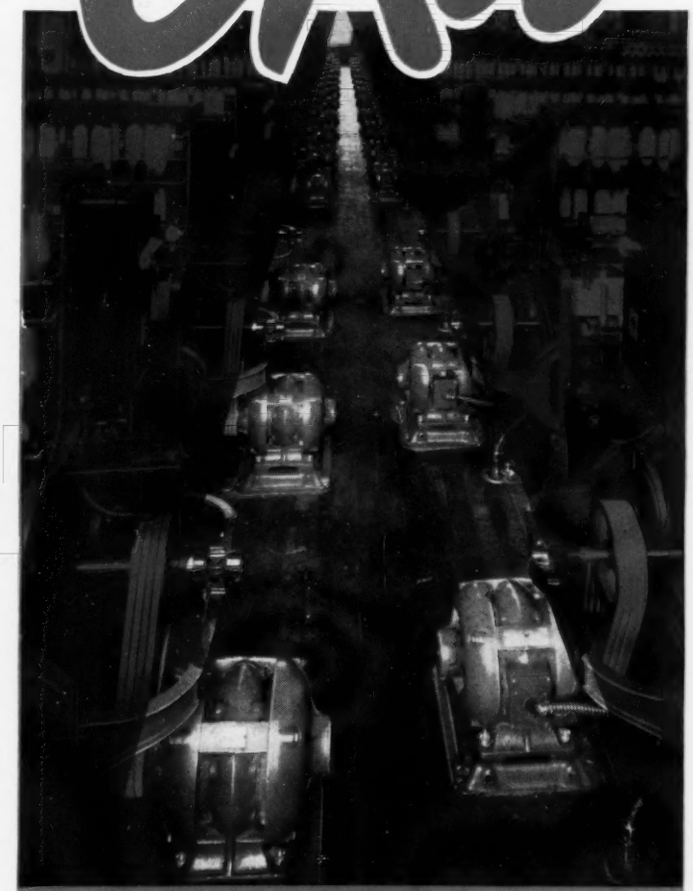
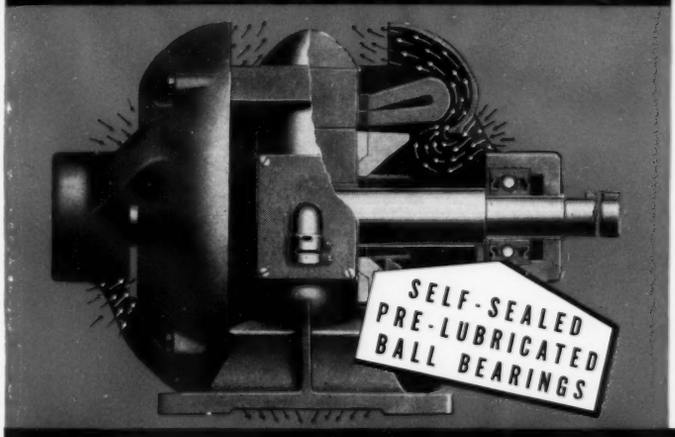
Okd by maintenance men





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Constant operation in lint-laden atmosphere makes unusual demands both on textile machine motors and the men who tend them. With Westinghouse Lint-Free Textile Motors, maintenance men find the problem simplified by three maintenance-reducing features of design:

EASY TO INSPECT—Skeleton construction and wide air passages make it easy to inspect Westinghouse Lint-Free Motors. Unobstructed view makes it unnecessary to disassemble motor to check cleanliness.

MOTORS STAY CLEAN—Lint passes in, through and out the wide, smoothly contoured air passages. Highly finished, streamlined windings and smooth internal surfaces offer no opportunity for lint to accumulate and clog motor.

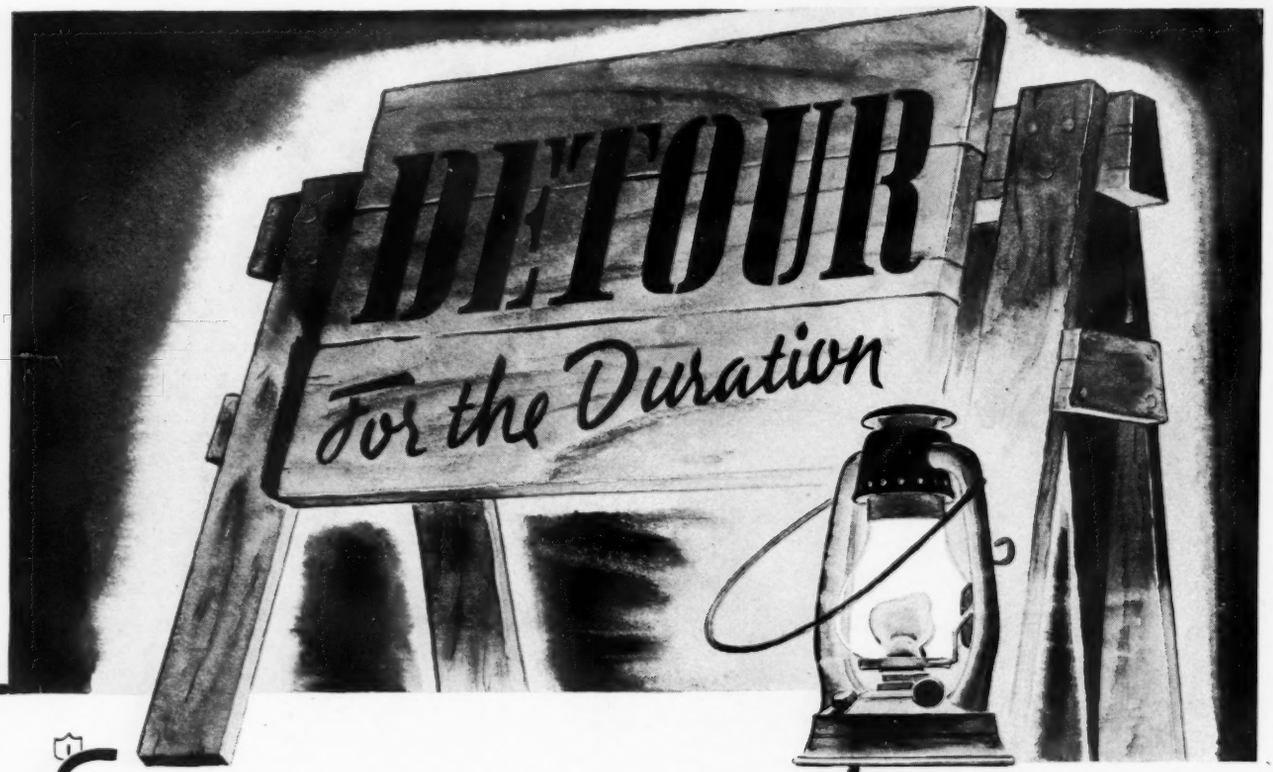
SEALED BALL BEARINGS STAY LUBRICATED—Pre-lubricated, self-sealed ball bearings keep grease in, lint out. Need for month-to-month lubrication is eliminated.

Westinghouse Lint-Free Motors are designed for individual drives on pickers, winders, and roving, spinning, and twisting frames. Send for folder DD-3175. Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., Dept. 7-N.

Air circulates freely through the unobstructed air passages—lint passes through the motor and out. Self-sealed ball bearing construction that eliminates need for frequent lubrication.

J-21158

Westinghouse
LINT-FREE MOTORS



There Must Be A Way...

Chin up. Today nobody can quit. The work must be done. If not in the good old way, in some other way . . . but . . . it must be done!

To help you find "your way" to your objective we pledge our fullest co-operation.

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Today, and in the days ahead, when circumstances may force a change from regular routine, Ciba Chemists, Colorists and Service Technicians are ready to cooperate with you to solve your problems. Please feel free to call upon them at any time.

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SHORTS AND REMNANTS

"Where to Buy"

"Some time ago (April 1935 COTTON) I saw a device for measuring the tensions of spinning bands while they were being put on . . . can you tell me the manufacturer of this device?"

RAYMOND E. HENDERSON
Superintendent,
Graniteville Co.,
Graniteville, S. C.

"Some months back (Sept. 1940 COTTON) there was an article on 'A New Way of Taking Off Picks as Used by a Large Southern Mill'. I would like to get the name of the concern who furnishes these little adding machines . . . "

H. BARTON
Marshall Field & Co.,
Spray, N. C.

(Articles mentioning devices such as the Cook-Taylor banding device and the hook-up using the Victor adding machine may be remembered for years after they appear. We will be glad to help look up equipment or supplies needed at any time, whether they have anything to do with previous mention in our pages or not.)

Series on Rayon Finishing

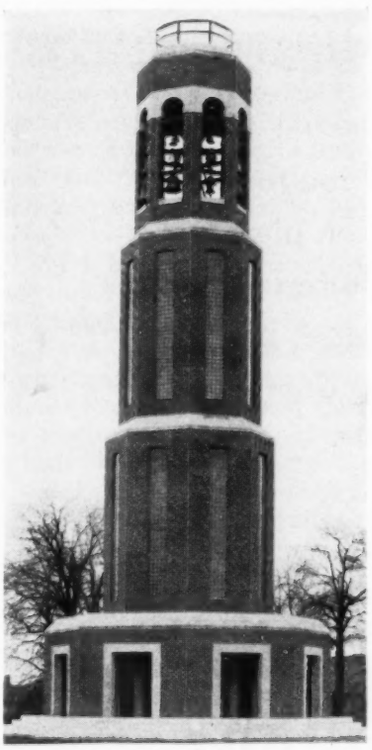
Beginning next month, COTTON will present an extensive series on "Modern Rayon Finishing". It will consist of several articles, and will cover fabrics made of filament and of spun rayon yarns. It will describe the finishing plant and procedure, with the special equipment needed; the chemicals and raw materials used in finishing; and give detailed processing of five principal typical lines. It will discuss modern finishes and specialties, and cost and other subjects.

The authors are Kenneth H. Barnard and Arthur H. Wachter. Mr. Barnard, an honor graduate of Harvard and M.I.T., has been associated with Pacific Mills for 16 years, as assistant superintendent and chief chemist. He is a specialist on finishes and his work has resulted in numerous patents. His future work will be at 40 Worth St., New York City, where Pacific is building a new Products Research Laboratory for him. Mr. Wachter, a Lieutenant Commander in the first World War, was trained at Sidney Blumenthal's by his father. He later became manager of the Lyons Piece Dye Works, then held several other important positions, and for the past six years, operated the rayon, acetate and silk division of Pacific Mills and was a member of their merchandise committee until the Lawrence plant was sold.

Mr. Wachter

Mr. Barnard

Readers are urged to look for this important series, and preserve the installments as they appear.



The Callie Self Bell Tower pictured here was erected near Greenwood, S. C., by James C. Self, president of Greenwood, Ninety-Six and Mathews cotton mills, and is dedicated to the memory of his mother. The carillon of 31 bells in the tower was purchased from the Netherlands Government, having been placed in the Netherlands Building at the New York World's Fair. The tower adjoins the Callie Self Memorial Baptist Church.

To Make Cotton Hosiery

"I am about to engage in the manufacture of cotton hosiery . . . lend me any assistance in launching this enterprise."

SAMUEL L. SOHN
235 Ft. Washington Ave.,
New York City.

(Best wishes, Mr. Sohn, and if you find any fine cotton yarn you don't need, we'll be glad to hear of it.)

◆

Orchids to Mathieson

Half century ago, a retired English alkali manufacturer, Neil Mathieson, was entrusted with the construction, erection and initial installation of the pioneer plant in this country for the production of bleaching powder and alkalis. This plant, supervised by his son, Thomas T. Mathieson, was built in Saltville, Va., and is now one of three of Mathieson Alkali Works, Inc., producers of bleaching agents and other chemicals for the textile industry. This one, as well as the Niagara Falls and Lake Charles (La.) plants, has been geared to maximum production to supply necessary chemicals for our all-out war effort.

Mathieson, a leader in textile chemicals, now is celebrating its 50th anniversary. The concern has been responsible for outstanding developments in paper, flour and other processing in addition to their textile achievements.

◆

"What Kind of Bridge?"

The Textile Machine Works, Reading, Pa., illustrated a point in their good insert in January COTTON with a close-up of a bridge game, saying "To Play One's Cards Well". One eagle-eyed subscriber noted that "dummy" had not been playing so well, as he had very plainly laid down his cards before the opponent's first lead. He said: "What kind of bridge do those folks up in Pennsylvania play, anyway?"

"Keeping the Mill Clean"

"With reference to Article 3 of 'Keeping the Mill Clean', page 76, December 1941 COTTON, we are interested in obtaining specifications of the following brushes as illustrated: 1, Brush for cleaning lower part of spindle frame; 2, brush for picking rollers; 3, brush used for punching out . . . "

K. E. ROSENBAUM
Purchasing Dept.,
Celanese Corp. of America,
Narrows, Va.

"I wonder if it would be possible for you to furnish me the December issue of COTTON. I have all other copies for the year except this and consider it valuable . . . I am especially interested in the article 'Keeping the Mill Clean'."

C. G. BUIE
Superintendent,
Aileen Mills Co.,
Biscoe, N. C.

John C. Fonville, for the past six years a member of "Cotton's" editorial staff, joined the armed forces on March 1, reporting for duty to the Air Force Combat Command, in Charlotte, N. C. Mr. Fonville, who holds a reserve lieutenant's commission in the Field Artillery, is on leave from "Cotton" for the duration of his military service.

Textile Mill Operators—

Call On Our

Industrial Power Engineer

INCREASE production! Eliminate waste! Those are the watchwords of this war. Practical aid is available to Georgia textile mills, large and small, through our Industrial Power Engineers.

In nearly all industrial operations there is some waste of electricity, machinery, manpower. Under our new *Customer Service Plan* one of the biggest jobs of our Industrial Power Engineers is to help you stop these wastes. They will seek the answers to your war problems just as they would if they were on your payroll.

The Industrial Power Engineer will help you find out how your plant can fit into the war production plan and what needed products it can make. We are offering this service because we want to be of real assistance, both to our customers and the government, in meeting urgent war demands.

Our twelve Industrial Power Engineers are trained, practical, experienced. To take advantage of their free services, simply telephone or write to any of our offices.

Georgia Power Company

COTTON
SERVING THE
Textile Industries

Vol. 106 March 1942 No. 3

Production, Alone, Will Do It!

THE TEXTILE INDUSTRY is preeminently a war industry, on practically the same footing as a powder plant or gun factory. The British Government has already recognized it as such, and if our Government has not yet done so, it soon must. Military needs are going to use up approximately half of the cotton mills' production for 1942 and will probably get more than half of the woolen mills' output.

Yet, only about four months ago, when the question of priority preference ratings began to affect the mills, a manufacturer of mill machinery got his Congressman to arrange for an interview with a person of some apparent consequence at Washington, in charge of the application of these priorities, and after the manufacturer had stated his case, the Government official replied approximately as follows: "Mr. Blank, it will only take a little handful of mills to supply all of the needs of the Government for defense. The Government can take over these mills, if necessary, and the rest of them will have to get along the best way they can. There is a shortage of a good many materials and a number of mills will probably have to close down."

There has been a tremendous change in the attitude of officialdom since then, but judging from the difficulties that some mills are encountering in getting vital equipment, there has probably not been as much change in this attitude as is needed. We have pointed out previously that the textile mills probably use less scarce materials in proportion to the value of their output than any other American industry, and it would certainly be impolitic to deny such an industry any reasonable requests for necessary equipment.

THE TEXTILE INDUSTRY is not only an essential part of our war effort, but an absolutely necessary part of civilian life, and if the war is going to take half of the cotton textile output, the remaining half of the production will still leave a deficit in civilian supply, even if the mills are kept going at maximum capacity. The cotton mills of the United States have done a magnificent job in 1941; a job that no one imagined they could do. Even the most optimistic estimate of 1938 and 1939 missed the actual accomplishment by about two million bales of cotton. An industry which normally consumed between six and seven million bales of cotton, actually consumed in 1941 over 10,500,000 bales.

Compare this with previous productions. In 1922, approximately 36 million spindles consumed approximately six million bales of cotton, while the pounds processed per average active spindle amounted to 88.1. In 1927, the active spindleage dropped below 35 million, but the raw cotton consumed was up to about seven and one-half million bales and the pounds per spindle had gone up to 110.2. In 1932, the active spindles were down to 27 million, and on account of the depression only five million bales of cotton were consumed, with an average per spindle of 105.9 pounds. In 1937, which saw a record production, there were about 25½ million active spindles which consumed about seven and one-half million bales of cotton and turned out an average of 151.9 pounds per spindle. In 1941, the number of active spindles had slipped down to 23,700,000, but they used up 10,500,000 bales of cotton, with an average production of 229.0 pounds of cotton per spindle.

This is a truly phenomenal accomplishment. During the five-year period from 1922 to 1926, when the United States as a whole was enjoying exceptional prosperity, there was very little variation in the pounds of cotton produced per active spindle, and the average for the five years was 91.3 pounds, while the average number of active spindles was over 35 million. In 1941, 23,700,000 spindles consumed nearly 70 per cent more cotton than 35,500,000 spindles were able to consume annually between 1922 and 1926. The production per spindle was two and one-half times as great in 1941 as in the earlier period.

THE MILLS have not only got to maintain this pace, but improve it if they can, and unless they can get all of the supplies they need and certain necessary complementary equipment from time to time as required, they cannot even maintain it. Give the mills the supplies they need, and they will provide no cause for concern during the war. It is doubtful if any other major industry has snapped into war production so smoothly, so quickly, and so powerfully as has the textile industry.

The mills are having their troubles getting labor, and the present turn-over in some mills is terrific. One large mill on fancy coarse goods, where most of the weaving is dobby and jacquard, reports a labor

turn-over of 10 per cent a month. Most of this is due to losses to the military services and to the temptation to seek higher wages in some of the new-born defense industries. While the experience of this mill is probably not typical of any great number, most of the plants have been having a very high turn-over, and are expecting this to get worse as more men are called into the service and more of these newly-fledged munitions plants are sprinkled around the country.

THIS BRINGS up a question that we have discussed before; the question of wage stabilization along with price stabilization—one being impossible without the other. We now have price ceilings for textile products, but no ceilings on wages. As these new mushroom defense industries spring up they habitually offer far higher wages than an old stabilized industry like cotton textiles can afford to pay. These plants are merely temporary and their operation is covered by an unlimited appropriation. They do not have to worry about competitive conditions after the war, and their only labor problem is getting it. If textile mills, as the British think, are as necessary in a war economy as the munitions plants themselves, it is imperative that where new munitions plants are established in the textile districts, some consideration is given to the established wage structure. There would be no better way of creating dissatisfaction and discontent than by paying unreasonably high and quite unjustifiable wages in these munitions plants. At the present time, cotton mill operatives are getting the highest hourly wage rate in the history of the industry, and if these wages will attract and hold cotton mill employees, they should certainly attract and hold employees in munitions plants, and it seems most unwise to foment trouble in the textile plants by paying unjust wages in these temporary establishments which will be abandoned after the war. Too high wages in these establishments are not only unjust to the taxpayer, but to the loyal workers in established industry who can not be paid these unreasonably high wages on any basis of realism or competition.

THIS ACCOMPLISHMENT of the mills is a triumph and vindication of the old-fashioned American way of doing things, which has been maligned and ridiculed during the past few years. The mills have been held up by the paper doll experts as being horrible examples of feudalism in industry, and the owners and operatives of these mills have been kicked about quite a bit by those who felt that all American industry needed reorganizing along different lines. But when the big test came and the country cried out for production, the old, backward, feudalistic textile mill industry, lacking all of the advantages of labor unions and modern trimmings, slipped into high gear with little effort and no delay, and turned in a magnificent performance. While great plants have been shut down for days or weeks over an acrimonious discussion about whether some one single employee should belong to the AFL or the CIO, or whether the plant could run without firing him if he refused to join either, and while tens of thousands of other men are refusing to work in their country's defense while some idiotic labor dispute is being wrangled about, the poor, benighted textile industry, which doesn't know any better, is hanging up some production records for the rest of the country to shoot at.

AMERICA IS in a war for its existence; a war to determine whether there can keep on being an America or not. We are in this war up to our necks and if we don't win it there won't be any more America as we have known it—a land of freedom and opportunity—there will only be a second-rate power surrounded by powerful and aggressive enemies. We are fighting this war with a weapon which we are peculiarly adapted to wield, the weapon of production. This war is going to be won by the side which can produce the most of the best, the quickest, and which can use what it produces most effectively. We have been losing so far by being there with too little, too late. For lack of a few more of our tanks and planes in North Africa, our allies were unable to follow up their advantage against the Nazis and destroy the enemy army. For lack of necessary planes, tanks and other equipment, our heroic General MacArthur is now bottled up in Bataan, and for lack of equipment to send to the Indies, and the means of promptly transporting this equipment, our side is losing precious territory to the enemy.

The people of this country must know that we are in a life and death struggle; the newspapers have been telling them so for two months, but millions of them don't seem to realize just what it means. It means that we have got to devote half of our income to war, and that means that we have got to sacrifice about half of the things we have been accustomed to having, or else get out and work overtime to make them. But the people do not seem to be in a sacrificial mood except rhetorically. They talk about it, but at the same time they are talking about maintaining the old standard of living, which any fool knows can't be done if the war is to be prosecuted vigorously. Hundreds of thousands of business men are expecting to make a profit out of wartime business, when there can't be any profit. The leaders of the millions of members of the labor unions have proposed that wages be adjusted to keep up with the cost of living, which is just another way of saying that the cost of living must be adjusted to keep up with wages, or that the Federal Government should pay everybody's taxes; a perfectly idiotic proposal. With the highest commodity prices in 20 years, the leaders of farmers' organizations and the Congressional Farm Bloc are yelling for still higher prices and a continuation of the farmers' dole. It sometimes seems that nearly everybody is expecting to get something out of this war instead of putting something into it.

In this war of production, speed is everything. It doesn't make any difference what we make or how good it is, if it isn't made in time. Every week of unnecessary delay loses ground that will cost thousands of American lives and millions of American dollars to regain. If we would save the future, we must sacrifice and work in the present. Amid all the cries of "too little, too late", there is one American industry which has fully measured up to the demands upon it. Without benefit of closed shop or check-off or jurisdictional strike or goon squad, it is doing its job and doing it well.

Engineering Defense Training for the Textlle Industry

By Ben H. Crawford*

ONE YEAR and two months prior to our being attacked by Japan and the subsequent declarations of war by the Axis powers and the Allies, the Congress of the United States passed an Act, in October 1940, appropriating $60,500,000 for the education and training of workers for National Defense. This money was provided for a four-fold plan: (1) 26,000,000 for the continuation of the pre-employment refresher courses of vocational training, (2) 10,000,000 for the expansion of vocational training to prepare rural youth for service in the National Defense Program, (3) 7,500,000 for the training of N. Y. A. youth and, (4) 9,000,000 for short courses in engineering colleges and universities to meet the shortage of engineers in fields essential to National defense.

Far seeing leaders, headed by United States Commissioner of Education, John W. Studebaker, early realized that a shortage of trained workers and trained engineers would prove a bottle neck in our defense preparation. This was especially true of trained engineers, as the number of available engineers was barely sufficient to meet the normal peacetime needs of industry.

The engineers graduated this year from all engineering schools in the United States will only number about 12,000. Of these graduates, it has been estimated that 6,000 will enter the armed forces, leaving for industry only about one-half or two-thirds the number normally required for their needs.

The rapidity of the development and expansion of our national Defense program makes any compilation of figures, based on yesterday's needs, almost obsolete before they can be gathered. Proof of this is clearly seen when we consider the mechanization of our present army, its enormous expansion planned for this year and next year, and the ever increasing tempo of our production to fill the needs of our defense program and those of our allies. This calls for more workers and more engineers.

During the last World War five men were required in industry to keep one soldier in the field. The airplane, tank, truck, etc., have radically changed that basis until now 18 men are needed in industry to keep one man in the field.

The U. S. Office of Education estimated as of June 1, 1941 that 50,000 college graduates in engineering professions were needed to man our defense industries. These figures were based on needs when the defense appropriation was below 16 billion dollars. Today's need has been doubled and trebled.

Engineering Defense Training Set-up

During the latter part of the last World War the Smith-Hughes Act was passed. This Act provided funds for establishing classes in vocational education. These classes have been in operation for the past twenty years, and have developed into a great system of adult education for a large mass of the working people. The system has been rapidly expanded and is now the basis upon which the workers in our present defense program are being trained. More than a million men and women have been trained since the expansion of the vocational training program, in the first year ending June 30, 1941, as compared to the 60,000 who were trained in a like period during the last war.

The $9,000,000 provided by Congress in October 1940 for short courses in engineering established a second and a higher level of training. The money was to be used by the engineering schools to provide courses of a college level for defense workers. Thus Engineering Defense Training, EDT, had its beginning.

EDT was under the supervision of Dean Roy A. Seaton, Director of Engineering Defense Training Division, U. S. Office of Education, who is on leave as dean of the Division of Engineering and Architecture, Kansas State College. Dean Seaton is ably assisted by George W. Case, on leave as dean of the College of Technology, University of New Hampshire, and other experienced engineering educators. Dean A. A. Potter of the Schools of Engineering, Purdue University, is chairman of an advisory committee of engineers assisting in guiding the program.

The first classes in college level courses were started in December 1940. By June 1941 a total of 2,300 proposals for courses from 144 engineering schools for a maximum of over 125,000 students had been approved by U. S. Office of Education, and the great majority of them were in operation at that date. The *Journal of Engineering Education* reported in December 1940 that the total enrollment of regular, special day and evening engineering students in 155 engineering schools in the United States was about 110,000 students. Thus, in a period of a few months, the enrollment in EDT courses reached the normal total enrollment of students in engineering colleges.

In an address before the annual meeting of the Society for Promotion of Engineering Education at Ann Arbor, Michigan on June 24, 1941, Dean Seaton made the following statement:

"It is obviously impossible for the engineering schools to condense into a short course educa-

*Assistant professor, textile engineering, Alabama Polytechnic Institute, Auburn, Ala.

A view of one of the textile defense training course classes at ***Auburn*** *. . .*

tion and training equivalent to that given in their four-year curriculums. Neither the United States Office of Education nor the engineering schools have any illusions that fully trained engineers can be produced in a period of a few months. It is possible, however, for the engineering schools to give, in a period of a few months, training which will make men and women more useful in defense work than they would be without this training. Engineers who are fully qualified and experienced in certain types of work can, in a short time, be given useful training for new and unfamiliar defense tasks.

"Civil engineering graduates, for example, can thus be trained for airplane design. Partly trained engineers can be given additional training to fit them for more responsible work. Each year, for financial or other reasons, many students drop out of the engineering schools after one, two, or three years of college work. Additional intensive, specialized courses will make them more useful in defense industries. Men and women who have had no engineering training, but who have a good general or scientific education, can be trained in certain techniques to enable them to perform repetitive or semi-routine tasks usually performed by engineers. Even high school graduates, with or without industrial experience, can be given training that will enable them to function as assistants to engineers, draftsmen, or minor inspectors or supervisors. All of these types of training are comprised in the Engineering Defense Training program."

The Engineering School of Alabama Polytechnic Institute, at Auburn, Alabama, through the efforts of J. E. Hannum, Assistant Dean of Engineering, and his associates, has achieved an outstanding place in EDT. The first off-campus night classes for "in-service" training were established in Birmingham, January 1941. The response of men and women enrolling for these courses was overwhelming; and from that auspicious start the program expanded rapidly until 14 separate schools were established in strategic industrial centers throughout Alabama with a total enrollment of over 3,000 students in which 43 different subjects were taught requiring 118 part-time instructors.

"In-service" training signifies that the enrollees are either working in plants with defense orders or expecting to be placed on defense work in the very near future. About 90 per cent of the enrollees in the Engineering Defense Training Program are of the "in-service" type—the other 10 per cent are unemployed men and women who are preparing themselves for a place in the defense program.

On July 1, 1941 Congress passed a second bill providing $17,500,000 for the continuation and expansion of college-level training for the fiscal year ending June 30, 1942. The law regarding this training was revised slightly to include science and management training and the name of the project was changed to Engineering, Science, and Management Defense Training.

Training in Textiles

It was under this new set-up that large-scale training in the Textile Industry was inaugurated. Prior to the establishment of courses for the textile industry at Alabama Polytechnic Institute (Auburn), only a few schools in the entire program throughout the United States were offering any courses of a textile nature. These classes were in textile testing.

Early in November 1941, the officials of the West Point Manufacturing Company evinced interest in the possibilities of the defense training program in regard to the textile industry. Numerous conferences were held between these mill officials, Dean J. E. Hannum, and the faculty of the Auburn textile school to prepare a program of work most beneficial to the textile industry. At later conferences officials from Pepperell Mills, Opelika Mills, and Tallassee Mills were invited, and a well-rounded program, consisting of eleven courses especially prepared for the textile industry, was submitted to the ESMDT Office in Washington for approval. The approved courses are: Carding Room Management, Cost Accounting, Fabric Designing, Industrial Lighting, Industrial Lubrication, Personnel Management, Production Engineering, Safety Engineering, Spinning Room Man-

agement, Textile Testing and Inspection, and Weaving and Weaving Room Methods.

The radio, newspapers, and posters were used to advertise the date of registration in these courses. Posters were placed on bulletin boards in all the nearby mills announcing the subjects, time, place, and date of registration, etc. Registration was held at the Alabama Polytechnic Institute on the night of November 25, 1941. Over 250 were present and enrolled for one of the subjects. After registration the men were sectioned according to subject and classes in six of the subjects were assured.

In order to organize a class a minimum of 10 trainees must enroll. A maximum of 30 trainees is allowed in a class. Should more than 30 trainees enroll for the same subject a second section is formed. One section in each of the subjects for which there were sufficient enrollees is being held on the Auburn campus. Other sections of the same subjects are taught at the mill where there is sufficient demand for the classes. Courses such as Spinning Room Management and Weaving and Weaving Room Methods are held in the Auburn textile school because of the physical facilities. Other classes are being taught in one of the classroom buildings.

The textile classes are held at night for men working during the day. The classes meet for 12 weeks, each course being 72 hours in length. Upon satisfactory completion of a course the trainee is given a certificate.

The high record of attendance is especially gratifying since all trainees live in nearby towns, and travel to the college two nights a week, some as far as 50 miles. The government bears all expense of the program except the cost of travel and text books. In some instances the mills are either lending text books to trainees, or are paying part of the cost.

The textile classes at this writing have now been in operation for six weeks, half the length of the course. The sacrifice made by the trainees to attend classes shows a spirit and determination to learn everything possible that will reflect in a higher efficiency on their present defense jobs and will better prepare them for increased responsibilities as they are advanced in their work.

Ala. Textile Safety Contest Awards Hugh Comer Trophies

A STATE-WIDE textile safety contest being conducted in Alabama is worthy of report and of emulation elsewhere. The Alabama contest was inspired by Hugh M. Comer, executive vice-president of Avondale Mills, as a means of accident prevention as an improved adjunct to safe action, increased production, higher quality workmanship, lower cost and less waste.

Mr. Comer personally provided two trophies, to be awarded the winning mill in each of two groups (1) spinning-and-weaving plants and (2) spinning mills. One of these trophies is shown herewith.

The first contest period covered the last six months of 1941, Thereafter, the contest will operate on an annual basis. Ratings in the contest are made on the basis of the lost-time accident frequency rate per million man-hours worked. The definition of a lost-time injury provides: "No matter at what time of day the employee is injured, if to such an extent that, in the opinion of the doctor, he is unable on the next calendar day to perform his ordinary duties, or the normal regularly established job, it is a lost time injury." The term "frequency rate" used for comparison is the number of lost-time injuries per million man-hours worked. In other words, the frequency rate equals the number of lost-time injuries multiplied by 1,000,000 and divided by the number of man-hours worked.

The trophy donated by Hugh M. Comer in the Alabama Textile Safety Contest. One goes to the winner among spinning-and-weaving mills; a duplicate to the winner among yarn mills . . . .

In this contest, for the first six-months period, the Goodyear Decatur Mills were the winner in the spinning-and-weaving class. It operated for the entire period with lost-time injuries to only three employees. The employees of this plant worked during the period a total of 920,908 hours, giving the plant of frequency rate of 3.26. This, incidentally, was 1.32 less than its 1940 rate, and 4.51 less than the National Safety Council average rate for the textile industry.

Adelaide Mills, Anniston, Ala., operated during the time with only three lost-time injuries, however, since the total man-hours worked at this plant was only 251,243, the frequency rate was 11.94, some higher than their 1940 average, and 4.17 higher than the National Safety Council rate for the industry in 1940.

There were 28 organizations competing in the contest, and it is interesting to note that 13 of these bettered their 1940 rate, and the interest manifested indicates a probability of lower rates for the 1942 contest now under way, despite handicaps of increased production and many new employees.

Detailed information concerning the Alabama contest may be secured from the Division of Safety and Inspection, Department of Industrial Relations, State of Alabama, Phoenix Building, Birmingham, Ala.

Labor Relations in War-time

By W. M. McLaurine, Secretary-Treasurer
American Cotton Manufacturers Association

IN A WAR-TORN world every one is more or less abnormal in his thinking and acting. Most people are creatures of habit and routine. As long as these move in normal channels, the average man thinks and acts normally. In a war world abnormal conditions arise and disconcert people.

The press and the radio with their news and views are excitingly and emotionally impressive and influential on the minds of the people. A war psychology necessary for all emergencies must be created and maintained. Some people react to these stimuli more than others and some may seemingly remain placid and unmoved, and yet they are suffering or acting from these same influences.

Thinking is hard work and most people do not like to think. When they have followed routine for a long time and thinking has become dormant, it is difficult to arouse the faculties of reasoning and work out a sane plan of life. Too often hazy thinking results in confusion and confusion is depressing and aggravating and often results in faultfinding and complaining. Our national thinking is shot through with confusion resulting in continuous changes and plans.

Industries are working diligently trying to fit themselves into the pattern of the rapidly changing world. Instead of being able to make their own internal plans and policies, these plans and policies are made externally for the most part and handed over to the industries.

People finally execute the blue prints of life, hence if there is difficulty in drawing the blue prints, there must be some disturbed mental states in their execution.

There are approximately three hundred thousand textile workers in the South who are patriotically doing their part in this war world. They expect to continue to do their part. However, this fact does not insure for them freedom from confusion in their thinking and acting.

Sons have gone to war, constructions have been changed, new shifts have been added, extra hours have been worked, new taxes have been levied and many other physical manifestations of unusual change have occurred.

The superintendent and the overseers are not the only people who have troubles. Every one is carrying his part. In such conditions as these it takes more patience and poise, more intellect and intelligence, more teaching and learning, in fact, more of all of the constructive virtues of mankind. People are sensitive and nervous. They become extremely self-conscious. The rapid changes create a state of both mental and physical insecurity in many people.

Too many feel that man is no longer the controller of his destiny, that some outside and uncontrollable monster of change can suddenly step in and wipe off the plan and pattern and set up another. There are many other crazy and disturbing motives influencing the thinking of people. The average man has only to sit and look into his own inner mind to find out that this is true.

All of this leads up to the point that overseers and superintendents must keep this fact in their minds as they deal daily with the people who work under them and over them.

These days produce nervousness and irritability and unreasonableness. These are natural states of mind in these hectic days. Nothing must be done by the supervisory force to aggravate such conditions but everything must be done to quiet nerves, soothe irritability and bring reason to unreasoning minds and understanding to all.

This is a much more difficult problem than manufacturing and yet it is the key to the situation. In order that the supervisor may have his mind stimulated in trying to become more aware of this responsibility, the following suggestions are made:

Patience and poise are two great characteristics that any supervisor or manager should have. These factors are quieting and soothing and contagious. They invite peace and confidence which are so vital in industrial morale.

There will always be grievances, large or small, and they are equally irritating. They must be handled as promptly as advisable, with a dignity and fairness that cannot be questioned. Insofar as it can be done, every possible job irritation must be removed or remedied. In performing his functions the manager must be constructively sympathetic.

When a manager deserves respect he will seldom need to demand it. Personality of the constructive leadership type is a valuable asset. View all complaints or assignments from all angles and be sure that justice is the guide in their solutions. At times it will be necessary to do some "face saving" on both sides. This can be done diplomatically by a resourceful leader. Your word must be your bond and it must be fair and impartial. Don't speak hastily or before your mind

THIS is the fifth of a series of short articles by Mr. McLaurine, prepared especially for "Cotton", discussing various phases of public and industrial relations work and problems of textile mills.

The series is in keeping with the current, active policy of the American Cotton Manufacturers Association in this sphere.

has reached a sane solution.

Always try to see the worker's point of view and why he has developed that viewpoint, then you can talk and act more intelligently. Every one likes to have his personality respected. This world has become extremely conscious in a personal way.

These are by no means all of the directions necessary for a manager to observe in discharging his supervisory duties. They are intended only to develop a state of mind in which he can work out his own examination and then his supervisory duties.

These sketchy statements are made with the idea that supervisors may become better supervisors and, therefore, workers will become better workers and finally salesmen in a great and unified program of public relations for the textile industry. The worker is the most important salesman in the industry in a public relations program. His mental and physical attitude toward the plant in which he works can not be disregarded.

A Practical Mill Engineer Comments on:

"Loom Motor Research"

(Editor's Note: On page 59 of the November 1941 issue of "Cotton", we published a technical article, "Loom Motor Research Moves into the Weave Room", by E. S. Lammers and C. G. Veinott, engineers of the Westinghouse Electric & Manufacturing Company. It was a detailed engineering report based primarily on tests made, by means of oscillographic tests, to determine the special demands made upon a loom motor because of the peculiar physical characteristics and actions of a loom. The authors' discussion was based largely on four oscillographic charts or oscillograms, reproduced with the article. In concluding their discussion, they declared, "It can be said that the efficiency of a motor operating a loom depends largely upon the flywheel effect and full load slip. Insistence by the user upon low-slip motors is most likely to result in reduced operating efficiency. Moreover, the average horsepower required to drive the loom is not sufficient basis for determining the proper horsepower rating of the motor to drive the loom; this is particularly true in the case of slow-speed looms".

A practical mill engineer, familiar with motor design and textile equipment, has just sent to us the following comment on that article. We regret the delay in presenting it, and suggest that the reader refer back to the article itself, in the November 1941 issue, and refresh himself on it in connection with reading the appended comment. Further discussion is invited.)

EDITOR COTTON:

This letter is a comment on the Lammers-Veinott article, "Loom Motor Research Moves into the Weave Room", in November COTTON. I think the article is very much worthwhile, and it is something that any mill engineer will understand and appreciate. Oscillograms usually scare any mill manager unless some technical man is holding him by the hand and leading him along, and they will plumb terrify any overseer of weaving I know. The article is frankly by and for technical men—and I mean for men that will take the time to read the article as they used to read their textbooks.

As stated in the article, a loom motor must have built into it extraordinary ability to stand mechanical shocks and vibration. Two of these are of particular interest, though they are outside of the scope of the article in strict interpretation. They are: repeated torsion stresses in the motor shaft, and varying forces tending to shift the motor coils in the stator slots in time with the lay motion. These forces pop up every once in a while in old loom motors that were built a bit light as shaft breakages and stator failures that are hard to explain, and sometimes as stator coils that cannot be kept tight and pinions that gall on the shaft.

This whole research revolves around two factors: the question of flywheel effect and compensating balance in motor slip. In one sense it is an exact evaluation of the work that the leather belt association did with the heavy flywheel for belt-driven looms, with an extension into the factor that could not be exactly defined in their work of the belt slip at the various peaks of load that the loom throws on the driving element.

The oscillograms in the article can be better understood by imagining the motor to be a clutch coupling between a driving force of constant speed and great power (the power lines or the magnetic field of the stator) and a load with sudden and regular peaks of power demand. On the load side of the coupling is a flywheel. This is an exact analogy, because the action of the stator field on the rotor of the motor, or the magnetic coupling through the air-gap of the motor, is that of a clutch coupling that slips a little more at each increase of power demand until it reaches its limit and slips completely. When this happens in practice with a motor, the motor stalls. With a set-up like this, when a power peak comes, the flywheel in slowing down gives up enough energy to push the load over the peak, and the energy needed in the flywheel for the next peak is stored up by a gradual increase in its speed as power is fed in through the slipping clutch while the load is low. Pretty much the same idea as starting a card—it takes a good slug of power to get the main cylinder up to speed and the belt complains considerably, but after the machine is up to speed it takes very little power comparatively to keep it going. If the clutch is loose and will let the flywheel take the power peaks the driving force doesn't feel much change in the load, but if the clutch is tight and will not slip under load variations, the driving force must take all the peak and the flywheel does not get a chance to give up any power. Another analogy that might be useful here is that of a single cylinder steam or gasoline engine with a very light flywheel—it just could not give a smooth flow of

power.

Incidentally, when a motor is running a steady load at a steady speed there is no use in flywheel effect, as power can be taken into or put out of a flywheel only when there is a change of speed. This is what is back of the statement in the second paragraph of the article where the authors talk about motors testing as identical in the laboratory and then giving widely different results on the loom. It is a case of steady versus varying load.

The ability of any electric motor to carry load is limited by the ability of the motor to get rid of the heat generated in it by the electrical losses. There are two of these losses—the magnetic loss in the motor iron, this being constant for any given voltage regardless of the load on the motor; and the copper loss, this being the current multiplied by itself and by the resistance of the windings. The current in the motor is determined by two things—the amount of load on the motor, and the power factor at which the motor is operating. If the load on the motor is doubled, the iron losses stay the same, but the copper losses at the double load are four times that at the single load. It makes no difference if the peaks are short, each peak adds its bit of heat and the final result can be a temperature higher than you would like to run. And then again, as the load on the average motor drops below about half rated load the power factor becomes poor and the amperes per horsepower of output go up, again increasing copper losses. If a motor is made high-slip ("loose clutch") and has enough flywheel effect to carry over the peaks, the electric end of the motor will operate under more constant load conditions and with measureably higher efficiency. Since motor losses are all heat, higher efficiency means lower temperature.

The rotating elements of the loom are comparatively light, and it is only in rotation that we can store and give up power. The lay must be started, brought to full speed, and stopped twice each revolution of the crankshaft; and in this reciprocating motion we cannot store power, because it must be put in to speed the lay up and taken out to slow it down and stop it ready for speeding up the other way. The flywheel effect to smooth out the pulsations must therefore be put in external to the loom as now made.

Where does all this lead? As one point it appears logical to compare loom motors on the basis of kilowatt-HOURS per yard of cloth, because the average wattmeter is so well damped that it will not indicate the peaks whose absence indicates a balanced design of slip versus flywheel effect in a given motor. As another point, it appears that the loom builders and the drive makers are attacking the problem of how much power it takes to drive a loom in the field of basic fundamentals, a field which has yielded great benefits in the automobile industry for instance. Remember how automobiles bounced and vibrated in 1924? The weight of the lay is something else. It takes power to start and stop moving weight, and when the war is over and we can get light metals it might be a paying proposition to lighten up the lay. There are also power peaks on the pick, and it would be interesting to know how much of this power is spent in bouncing the shuttle out of the binders and starting it across the loom. Then, too, it must be started with an excess of energy that is wasted as heat in boxing the shuttle at the end of its flight. Is our present binder set-up the final answer, or is there a better way to come? The authors of your article suggest a spring-fired shuttle. We have always used the cam and stick. Again—is there a better way to come?

Recommended Illumination Levels for Textile Mills

The illumination table listed below for textile mills is the result of recent findings and observation by the Westinghouse Lamp Division, Bloomfield, N. J.

It is based on the scientific fact that existing foot-candle levels should be at least doubled if measurable and significant improvements in seeing are to result. In addition, the new recommendations give full weight to the improvements in old light sources, the high efficiencies of the new, and the ever downward trend of lighting costs as a result of all these improvements. The values shown should be provided on the work or other area regardless of the plane.

Activity	Foot Candles
Textile Mills (Cotton):	
Opening, Mixing, Picking, Carding and Drawing	10
Slubbing, Roving, Spinning, Spooling	20
Grading	100
Warping on Comb	30
Beaming and Slashing on Comb—	
Grey Goods	20
Denims	100
Inspection—	
Grey Goods (Hand Turning)	50
Denims (Rapidly Moving)	200
Automatic Tying-In, Weaving	50
Drawing-in by Hand	100
Silk and Rayon Manufacturing:	
Soaking, Fugitive Tinting, and Conditioning or Setting of Twist	10
Winding, Twisting, Rewinding, and Coning, Quilling, Slashing	30
Warping (Silk or Cotton System)—	
On Creel, on Running Ends, on Reel, on Beam, on Warp at Beaming	50
Drawing-In—	
On Heddles and on Reed	100
Weaving:	
On Heddles and Reeds	10
On Warp Back of Harness	20
On Woven Cloth	30
Woolen:	
Carding, Picking, Washing, Combing, Twisting, Dyeing	10
Drawing-In, Warping—	
Light Goods	20
Medium Goods	50
Dark Goods	100
Knitting Machines	20

Luminous Coatings for Textiles —for BLACKOUTS

By Eric Croen

BLACKOUT is no longer a mere word but more becoming the grim practice particularly in our coastal cities. Since utter darkness would seriously hinder life and action, the ghostly glow of luminescent substances finds use in preventing the strain, uncertainty, and confusion of this new blindness. Britain, darkened by blackouts, had twice as many deaths in the early months of the war from falls, collisions, and other accidents than during the well-lit peaceful times. Still higher than average, fatalities would be much greater without the wan gleam of curbs, guide rails, doorways, sign, and even pedestrians' lapels and trouser cuffs touched with luminous pigments. Rather than being just novel conveniences, these luminous coatings have become a necessity.

Essentially, they are of two classes:

1. Fluorescent substances which lightup only as long as they are activated by ultra-violet radiation (so-called "black light") and useful only where such a radiation can be maintained; not possible, for instance, on moving pedestrians or when the power plant goes off. This class will not be discussed further here.

2. Phosphorescent substances which also glow under the ultra-violet light but are independent of it, giving off light in the darkness—light previously stored from exposure to sun, to indirect daylight, or any artificial light. This *afterglow* lasts for several minutes or for several hours, the duration and intensity of the light depending on the nature of the chemical substances and their mode of manufacture, Such glows are of rather low intensity and at first seem disappointing. When the eyes have been adjusted to the darkness, this taking from 5 to 20 minutes, they appear quite bright. Yet, in partial darkness, like that of a moonlight night, these luminous pigments have no advantage over white (but they are almost white themselves). Their great advantage is *showing their light where white becomes dark gray or becomes indistinguishable.* Of course, the greater the area of pigmented surface used, and the simpler the shape of it, the better will be their visibility. Thus, letters which are to be read at 50 or 60 feet, would have to be one or two feet high; those which are one to two inches tall can only be seen at a few feet. Experience in war-time Europe showed that a 25-watt electric light could be seen six to ten miles through the darkness; even if used in an unshaded room, it could still be seen from an airplane two miles up. By contrast, these luminous pigments are too faint to be seen more than 100 feet away, yet are of great help to the groping walker or creeping motorist.

Phosphorescent Substances

There are many pigments of this second class. Those which are now commercially available and industrially useful are the phosphorescent sulphides, technically known as phosphors. While it is true that the best of these will remain discernible to the fully dark-adapted eyes for a period of 24 hours or more, none of the materials so far developed can be relied upon to remain *usefully* visible throughout the night after activation from the previous daylight. However, recharging them is quickly and easily done; and if periodically performed, no loss in the intensity of the afterglow need be allowed or noticed. Even a 10-second exposure from an ordinary flashlight reproduces enough glow to last several minutes. A two-to-four-hour light activation or "charging" of the better types will result in a glow that lasts up to 12 hours. This charging and discharging can go on indefinitely, the phosphors being stable and useful for two years or more if properly protected.

Two types of commercial products that are of immediate interest are:

1. Zinc sulphide phosphors which are not pure zinc sulphide alone but are made with a very small amount of other metals known as "exciters", these being absolutely necessary to produce the afterglow and incidentally make the various colors. Thus, with only 0.0006 percent copper, zinc sulphide has an afterglow of a bright greenish-yellow color. It lasts for 10-20 minutes and is still visible, though much reduced, for ½-2 hours. This pigment cannot be used outdoors and should be shielded from direct sunlight. Therefore, one of its main uses is that of indicating exits normally illuminated except during blackouts.

2. Alkaline earth sulphides have a less intense initial afterglow but it lasts longer than that of zinc sulphide. Calcium sulphide, with its exciter metal, gives a deep violet light of good lasting qualities. Since the human eye is relatively insensitive to this color, it appears dimmer than the blue-green afterglow of the strontium sulphide type, whose brightness seems to last longer. This advantage is offset by the sensitivity to moisture of the latter type so that it must be thoroughly protected from moisture during the manufacture, storing and use, especially if exposed outdoors.

Calcium sulphides are cheap while the strontium sulphides cost up to $15 or more per pound. Mixtures of the two are often used giving the good qualities of both at a reasonable price, at present

about five dollars a pound. The afterglow is blue in color, of fair brightness and of good duration. Though it becomes 25-30 percent less bright in a half hour, it can still be easily seen after 6-8 hours when it seems less blue, more whitish. It is such a product that the author has in mind during most of the following discussion.

Numerous precautions must be heeded to get the best results from such a pigment whether used in paint or applied to textiles. It is a rather coarse powder of 100-200 mesh fineness but should not be further ground as this would destroy the crystalline structure upon which its luminosity depends. We have mentioned metals as being necessary "exciters" but others are poisons, more especially lead and antimony: these must be avoided to retain the luminosity.

Paints usually contain 5 to 10 pounds of pigment to each gallon and when made up, cost from $10.00 to $60.00 per gallon. They are used to cover surfaces of wood, paper, rubber, glass, even textiles. Such pigments have also been successfully incorporated in plastics both by the pressure and injection moulding methods to make such things as button and buckles, jewelry, switches and switches boxes.

Applications to Textiles

Here our main concern is the application to textiles. Almost any textile material can be used for coating with luminous pigments, but since much of the original quality of the cloth is lost, cotton fabrics are most generally used because of their strength and cheapness. None of these needs to be dyed as the coating covers the surface entirely: indeed it should be avoided. The material is best when it is smooth and white to give a good background for the light which the pigment emits, though good results are obtainable on unbleached (grey) goods. The treatment can be applied to many kinds of cotton materials: on braids and cords, on narrow fabrics such as ribbons, tapes and webbings; on piece goods from light weights to canvas. As only one side is usually exposed during its use, only that side need be coated, thus reducing costs.

The choice of a proper *vehicle* for the pigments is all-important. Among the prime requisites are:

1. It must be clear, as any slight color filters off the short waves of light, greatly reducing the luminosity.

2. It must not react with the pigment—for this reason a low acid number is desirable as any acidity developing from the vehicle or the thinners (some, the esters, hydrolize easily) starts decomposition of the sulphides and the subsequent discolorations are enough to cut off all the luminous effect in time.

3. It must not thicken when mixed with the pigment but remain free-flowing.

4. It must be plasticized so that the textile remains reasonably flexible.

5. For most conditions, it should be quick drying, say at 140-160 degrees F.

6. It should be tough and durable and be a protection against moisture and weather.

Many vehicles have been tried; i. e. various resins and varnishes, some of which are valuable for special purposes. Chlorinated rubber is a useful base for such a pigment binder because of its waterproofing effect but it is very liable to develop acid; now, of course, its non-availability is an added problem. Lacquers hold more promise. An acetate-cellulose lacquer can be used but will thicken in a few hours and finally become a stiff jelly. A waterproof nitro-cellulose lacquer has this same disadvantage. When carefully compounded, using dibutyl phthalate as a plasticizer, this can be overcome but even then it is not of best durability. A specially compounded ethyl cellulose lacquer satisfied the most rigid conditions: it was perfectly clear, tough, and durable. The paste containing it and the pigment remained pourable even a month after mixing. Fabrics coated with such a mixture were exposed for a long period to sun and rain and constant use showed excellent resistance to water, weather and wear, indicating that they would last as long or longer than normally.

As for the actual coating of the cotton with this mixture, there are many methods. It could be brushed on like ordinary paint—this being a rather crude, hand method. A crude form of printing would make use of stencils. Printing with copper rolls is out of the question as the hard crystals would scratch badly. Silk screen printing is possible for large decorative designs or letters if the lacquer is first applied and while it is still wet, the powdered pigment dusted on. Spraying with an air gun is also possible, low pressures giving the best results. After spraying, lay horizontally to dry, then finally heat to 140-160 degrees F. to help drive off traces of moisture.

Coating the Fabric

By far the best way to do the coating of wide goods is on the usual pyroxalin coating machines and in the same way: the lacquer-pigment paste takes place of the "dope" and is fed to the doctor knife by hand or semi-automatic device to the degree necessary to produce the effect wanted, the subsequent drying being the same as usual. Ragged edges would result if such a method were used on narrow fabrics so a modification of the doctor is used. The tape, which is practically *all* selvage, is passed through a can containing the coating solution, this having slits at both the top and the bottom which are carefully adjusted dies to regulate the right amount to be applied. If run through a series of such cans with drying in between each, continuous operation is possible while applying several coats.

Whichever method is employed, three essentials practiced in application are:

1. A *prime* coating of clear lacquer only, on one or both sides, to close the pores, seal the fabric against moisture and make a smooth base for the later coats. If the luminous mixture were applied first, more would have to be used and it is much more costly than the lacquer. The viscosity of the lacquer should be such as to be free-flowing. An ethyl-cellulose lacquer that gave good re-

sults had about 25-30 percent solids and weighed 7.2 pounds per gallon.

2. The *luminous* coating, usually on one side only, gives better results of greater uniformity if it consists of several coats at a weaker concentration than would a single coat of higher strength. The luminous pigment is merely stirred into the clear lacquer at the rate of three pounds for one gallon of lacquer; or 30 percent by weight. The amount deposited can be regulated when applied by machines after a little practice. A good luminous effect results when about 3 ounces of pigment is evenly spread over a square yard of surface.

3. The *finishing* coat, always on both sides, again with clear lacquer, serves two purposes: It smooths the roughness left by the pigment coatings giving a better finish; and it adds that protection against soiling, atmosphere and especially moisture-protection so necessary to the longer life of the pigment. The total amount of lacquer solids used can be modified at will and may amount to three ounces per square yard.

These figures are a rough guide to the amounts used for a satisfactory coating but help to arrive at an approximate cost. The luminous pigment is the most expensive item, it alone accounting for half of the total. A fair average of all costs would be about two dollars per square yards of goods. From this, the price per yard of any cloth can be calculated. For instance, a tape 2¼ inches wide would figure about 12½ cents per yard.

Surfaces painted with luminous pigments find many uses in war times. To mention only two: the dials and switches of a night-flying bomber; or the inside of turrets on a battleship. Luminous-coated textiles find their greatest use for wearing apparel during blackouts: for cuffs, arm or hat bands, belts, even luminous hose for women has been mentioned. Boutonniers of luminous flowers were made and sold in Berlin. These phosphors are not poisonous in any way, not harmful to the hands, and have even found their way into a luminous lipstick, so romance need not stop in the dark. The cloth can be cut into any shape and hung or pasted where needed or sewed on garments. Tapes have been used to indicate stairways, aisles, handrails, to wrap around poles or defense machinery during temporary blackouts. In Switzerland, a large sheet coated with the zinc sulphide phosphor was hung in the operation room of a hospital where its absorbed light was released brilliantly when all the electric lights were suddenly shut off. Luminescent belts for policemen, traffic officers, air raid wardens, guards, firemen and ambulance drivers is an obvious use for luminous coated tape. Such suggestions could be enlargened and dark times to come will find more uses than we now know.

In peacetime many other uses will develop where radium paints have always been very much too expensive. Though none is pertinent now, perhaps even trivial to mention, here are a few: house numbers, wall paper, pull cords, bedside lamps with luminous shades, stars and moons cut out from cloth for childrens' rooms, screens, dog collars and leashes; and perhaps a little mystery and fun at Hallowe'en if our wartime duties allow us to relax.

References: The Chemical Formulary, H. Bennett, especially Vol. V, p 347. American Chemical Society, News Edition, Vol. 19 No. 22, pages 1266-72; 1252-54.

Chemistry and Industry, Vol. 60, No. 30, p 551/4.

The "Maid of Cotton" for 1942

THE OUTSTANDING traveling promotion in behalf of textiles was started on its way for 1942 with the selection, on February 6, of the "Maid of Cotton" for 1942. **Camille Anderson**, a brown-haired, blue-eyed beauty, of Memphis, Tenn., was chosen from a field of more than 200 applicants. The selection was made in Memphis by a committee of nine judges, headed by **Harry Conover**, head of the model agency which bears his name.

The "Maid of Cotton", after a period of training at the Conover agency, will shortly begin a 16,000-mile tour of the country by airplane, accompanied by a Lux stylist and chaperone, visiting more than 30 of the larger cities from coast to coast. In each city she will display, at a leading store, the latest fashions in cotton dresses and other apparel, and will emphasize the line of garments for women workers in defense industries recently developed by the Bureau of Home Economics of the Department of Agriculture, in co-operation with the Cotton-Textile Institute and National Cotton Council, who are among the sponsors of the "Maid of Cotton".

The 1942 Maid is shown at the right. Below are the judges who made the selection after five hours of grueling elimination. Left to right: **Clark Porteous**, of the Memphis Press-Scimitar; **Arthur Bower**, secretary of the Memphis Cotton Exchange; **W. M. McLaurine**, secretary, American Cotton Mfrs. Assn., Charlotte, N. C.; **H. B. Titcomb**, department store promotions manager, Lever Bros., Cambridge, Mass., **Harry Conover**; **Ed Lipscomb**, of the National Cotton Council; **Virginia Jewel**, fashion director of The Cotton-Textile Institute; **Robert W. Philip**, editor of "**Cotton**"; and **Frank H. Schutt**, general manager, Peabody Hotel.

Maintenance of Electrical Equipment in the Textile Industry

By Rhea W. Johnson

PRODUCTION machines in the textile mills are only as useful as the equipment from which they derive their motive power makes them. It would be of little value for a plant to modernize the processing departments and to maintain productive machines in an adequate manner, unless the same care and attention be given to the electrical equipment, motors, and wiring. As the power equipment goes, so goes the mill. With this thought before us, the writer will comment on some practices that he has found helpful in dealing with electrical equipment maintenance, breakdowns, and the maintenance of equipment to prevent electrical failure.

Organization and Training Electrical Crew

Before an attempt can be made to take care of electrical maintenance with any hope of success, that portion of the mechanical or engineering department held responsible for this work must be organized and trained for the job. This not only refers to repair work after the trouble has occurred, but takes in work of much greater importance—that of preventing trouble, the occurrence of which may result in costly shutdown of equipment. A man must be trained to observe the indications of a breakdown, and once having noticed that some particular type of equipment is about to fail, must know the remedy to keep that equipment in production.

Organization for such work should consist of a head electrician who has the necessary men under his supervision to take care of the work, the size of his crew depending upon the size of the plant. This head electrician should be thoroughly familiar with the details of all electrical equipment, all circuits and power arrangements of the mill, and he should see to it as much as possible that the men under him are also familiar with the foregoing essentials.

This head electrician would in turn be directly responsible to the plant engineer, and together they should work out systems of inspection, upkeep, repair, and other important schedules for the work of keeping the equipment operating. The foregoing systems or schedules must be made in collaboration with different departmental supervisors, depending upon the nature of the work.

The part of the plant engineer in this phase of mill work is that he must also be familiar with the electrical system, and to carry out his job effectively and efficiently he should be more familiar with the physical characteristics of the plant than any other individual.

Compact testing kits in a single box facilitate speed and accuracy in electrical maintenance work around the mill . . . . . .

Team Work and Co-operation

Since every textile plant is built differently and has different types of equipment, men taken from the outside or even from other departments must be trained in the fundamentals of the plant's electrical system. As soon as they have become familiar with this, they still must be trained in the principles of working safely and must be taught the importance of working together as a team. This team work is important not only for efficient operation of the electrical force itself, but is essential in order to lighten the load on the crew and to help them and their co-workers get results quickly, efficiently, and above all, safely, because of the potential danger from shocks and burns. There must be co-operation between the maintenance crew

and those handling the productive machines of the various departments.

So much for the organization of the force to take care of preventive maintenance, which is continually necessary. And note that especial emphasis has been placed on safety and safe working methods.

It is well to remember that since no one or two men, however able, can know everything about the equipment in a particular plant, it is certainly wisdom to consult manufacturers' specialists and representatives concerning the selection and application of new equipment, the purchase of which is contemplated. This should receive equal importance with later maintenance because an error in the initial step may be the undoing of carefully prepared production plans and schedules, with attendant expense and recurring trouble for the electrical force.

Motor Inspection and Service

Since motors of various types are the bulk of electrical equipment, they command the most service and attention. Factors that affect their maintenance are the atmospheric conditions of their locations and the service and load conditions under which they operate. It can be said that successful maintenance must be based on competent and regular inspection of motors and their controls.

One method of carrying out such a regular inspection is to have the motor lubrication throughout the plant done by a trained electrician, who, in addition, has a knowledge of belting problems and the care of belts. So often the mistake is made of having the oiler recruited from the least experienced men available; unfortunately, this is true of a good many other departments in some plants.

Oiling schedules of necessity must be adapted to operating conditions and types of motors, but it is safe to say that in the average textile plant the lubrication schedule should catch each motor at an interval not exceeding 10 days. Of course, there are motors which require daily attention,

ELECTRIC MOTOR MAINTENANCE RECORD CARD NO. ____

MOTOR NUMBER (OUR) 5 MFR'S SERIAL 431717 MANUFACTURER Westinghouse

TYPE Induction H.P. 50 SPEED FULL LOAD 1750 R.P.M. NO LOAD 1800 R.P.M.

AMPERES PER TERMINAL 125 VOLTAGE 2200 NUMBER OF PHASES 3 FREQUENCY 60

APPLICATION Driving Centrifugal Pump DATE INSTALLED June 1-'34

DATE	AIR GAP				INSULATION RESISTANCE		REMARKS
	TOP	RIGHT	BOTTOM	LEFT	STATOR	ROTOR	
6-5-34	.047	.046	.050	.045	100	75	Motor out of Service ½ Hr. Cloudy
12-30-34	.047	.046	.060	.045	90	70	" " " " 2 Days - Humid
5-15-35	.048	.046	.049	.045	95	76	" " " " ½ Hr. Clear

DATE	GENERAL RECORD OF MAINTENANCE
5-15-35	Drained and flushed Bearings, Refilled with fresh oil
8-10-35	Cleaned Motor with Compressed Air

Motor maintenance card and record of test work

such as those located in the dustier parts of opener rooms and those driving equipment and processes which affect the entire plant; for example, humidifier, air compressor, and boiler feed pump motors. At the other extreme are some types of motor bearings which only require lubrication two or three times each year; however, the point to be emphasized here is that a systematic lubrication check-up or inspection should be made every few days, thereby affording an experienced observer frequent opportunity to see other conditions affecting the life of the equipment.

Inspect Motors for These Points

At the time each motor is inspected and lubricated, the following points should be noted:

(1) Over-lubrication; this is about as bad as lack of oil in that the excess oil is wasted and gets into the windings, causing deterioration.

(2) Condition of bearings and oil rings, indications of heating, and belt tension when belts are in use.

(3) Inspection of leads and connections on motor and starter; also see that ground connections are secure. All leads should be well insulated and protected as much as possible both for the sake of service and as a safety precaution for the operators.

(4) On machines having brushes and commutators the brushes should be well seated, the commutators smooth to reduce arcing, and the rigging kept clean to prevent fire.

(5) The general cleanliness of the motor and starter should be checked and called to the attention of the parties responsible for this particular operation. Clogged air passages and ventilating ducts will cause the windings to overheat, and lint and dust in switches and starters may result in fire. In some locations motors must be blown out with air hose daily, and in other locations a weekly cleaning will suffice. In some instances end shields must be removed to clean them.

The Card System for Service Records

Any unsatisfactory condition discovered as a result of the oiling and inspection schedule should be reported to the head electrician for prompt attention. One method which has proven effective in keeping tab on motor and starter maintenance is to use a Kardex or motor record card system in which all motors are numbered and a card kept for each motor number. On these cards are the specifications and amperes the motor draws under full load conditions, as well as the machinery it is driving. Date and record space is provided for the performance, maintenance, and any work done on each motor and starter, such as changing oil in

bearings, re-winding stator or renewing controller contacts. With such a record an up-to-date case history is available for each machine, and by this means habitual trouble makers, weak places in the service given different motors, etc., are immediately located. The record is also a valuable source of information when considering drive changes in the plant.

Auxiliary Electrical Equipment

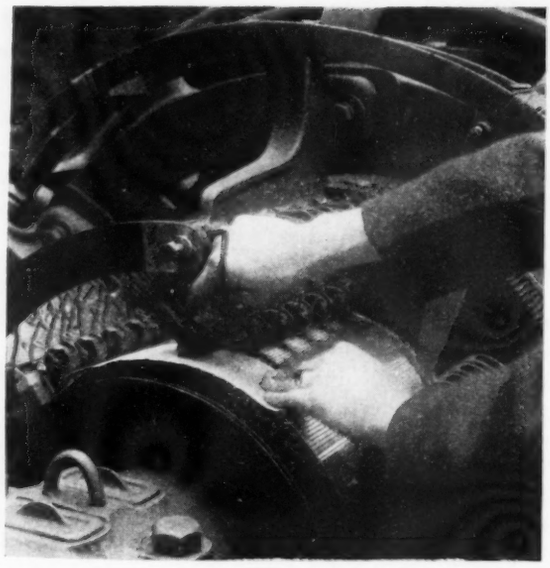
The attention given magnetic switches, compensators and other controllers will, like that given motors, vary as to location and operating conditions. They should be blown out every week if in dusty or dirty locations and their contacts and oil periodically checked for replacement and changing.

For the protection of motors, checks should be made of the tripping points on overload relays, fuse capacities and heater coil ratings on thermal cut-outs. How frequently this should be done must be determined by the experience of the electrical force or personnel, but it should certainly be done not less than twice each year on such apparatus as distribution switchgear and important circuit breakers. At least annually the oil in all transformers should be tested for dielectric strength, and megger tests should be made on insulation and terminal bushings.

If transformers, switchgears and bus bars are located where they will collect dust and lint, they should be cleaned as often as required in order to prevent the possibility of arcing or short-circuiting. The oil level and temperature of the transformers should be under continuous observation and any loss due to leakage or evaporation should be replaced at once. Also, a weather eye should always be kept to see that lightning arrestors have good connections to ground about the best obtainable is an underground water main.

One thing which may at times be overlooked is the influence mechanical failure can have on the electrical breakdown of equipment. For example, loose connections about the heater element of a starter may destroy the setting or calibration of the relay; a loose connection to a motor may so unbalance and overheat the circuit as to cause insulation breakdown.

Brushes should be ground in by use of sandpaper held snugly against the commutator and pulled only in the direction of rotation, with the brush riding properly in its box . . . . . .



Especially are loom motors, switches and stop motions subject to electrical trouble induced by mechanical faults and vibration. The same thing is true of light drop cords and other types of open wiring, all of which should be put in conduit where practicable as this type of wiring constitutes a considerable fire hazard.

Proper belt tension is important to the life of bearings because excessive wear will unbalance the electrical system of the motor by changing the air gap between rotor and stator for this same reason correct shaft alignment is essential.

Overloading Circuits

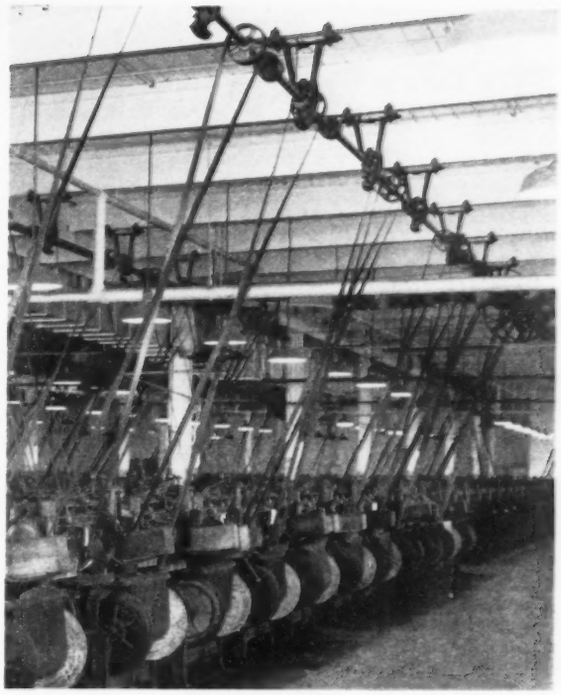
One thing which may cause grief eventually, and lots of it, is the practice of adding load bit by bit to circuits and feeders which were selected in time past for some definite electrical capacity. This encroachment can be so gradual, such as adding fractional horsepower motors here and a few extra lights there, as to be unnoticeable unless all circuits have meters on them. It is a good idea to practice checking wire size. Usually, however, the damage is done on unmetered branches and minor distribution lines, with resulting insulation breakdown, grounds, and perhaps fire and short-circuits in conduit which may be hard to locate. Worse than anything else, such trouble can feed back through the distribution switchgear and transformers to other parts of the plant, causing breakdowns at weak points on other circuits. It is, therefore, of the greatest importance that checks be made of the load on different circuits and the current-carrying capacity of the wiring each time additional load is considered.

As previously pointed out, to effect successful maintenance of any sort in any plant, a well trained flexible force must be available to do the work when trouble does occur, but it cannot be over-emphasized that this is only a portion of the effort. The maintenance force must endeavor to win the co-operation of all departments in the plant, for by so doing the continuous inspection, checking, cleaning, etc., of preventive work can be made all the more effective and easy.

Above all, it must be realized by everyone concerned that the mechanical force must function as an integral part of the entire plant organization, and unless it does, its effectiveness will always be less than that measure which insures success.

If the maintenance crew is sold on its job, this department can pay an excellent dividend on its important job.

Belt Maintenance



IMPROPER and inadequate maintenance of leather belting in the mill can result in undue deterioration of the belts as well as loss of power. Good leather belting is designed and manufactured to render satisfactory service and important service, but its maintenance is in the hands of the user, and even the best product will suffer unless the user gives it intelligent care and treatment.

The correct maintenance of leather belts requires that tensions be held high enough so that the belt will slip little if any under peak loads. This slip is indicated by squealing of the belt, or by a tendency of the belt to slide toward the edge of the pulleys. Belts should be cleaned and treated at regular intervals. Regular inspection of belts and pulleys will indicate when belts should be shortened, and also reveal conditions that tend to destroy or damage the belts.

Avoid Oil

Every precaution should be taken to prevent belts from becoming saturated with lubricating oil or from coming in contact with oil at any time. When a belt does become so saturated it may be cleaned by first scraping it and then packing it in sawdust or other absorbent for several days. An excellent method is to soak the belt for from 8 to 24 hours, depending upon the thickness, in unleaded gasoline, after which the belt should be scraped and dried before treating on both sides with a good belt dressing.

Surface dirt may be removed from belts by wiping them with a cloth moistened with kerosene, this being done before applying belt dressing.

Breaking in Belts

It is of greatest importance to watch a belt closely during the breaking-in period and shortening it if necessary while the belt is becoming set to the drive conditions. Many belts are ruined during the breaking-in period through being allowed to come loose, which permits the belt to slip and slide off the pulleys and rub on one edge, which throws a crook in the belt that never can be entirely eliminated.

Belt dressings are used to increase the coefficient of friction of a belt, enabling it to pull heavier loads with a given tension. Dressings should be applied only when the belt slips during operation and should be applied sparingly to enable the belt to continue to pull its load until the machine can be shut down and the belt tightened.

It is generally advisable to clean belts at least every six months and apply a dressing or grease that will give the surface a clean, sticky, pulling surface similar to that which it possessed when new. The grease in a new belt becomes exhausted after the belt has been in service for awhile as a result of heat, friction and atmospheric conditions. The application of additional grease is necessary to keep the belt in a soft and pliable condition.

A grease consisting of two pounds of edible beef tallow and one pound of cod liver oil, such as is used at the factory when the belts are manufactured, is very satisfactory. The tallow is melted and allowed to cool slightly, after which the cod liver oil is added and the mixture stirred in one direction until cold. It should be applied in light coats with a camel's hair brush, and should be used very cautiously as it tends to reduce the coefficient of friction of the surface of the belt and produce belt slippage.

In the foregoing, we have discussed "belt dressing" to cover a sticky-type dressing used in order to give the belt a temporary high coefficient of friction, and the phrase "belt grease" to describe a material for lubricating the leather fibers. In the leather belt trade, belt dressing is used to describe both materials, and there are a number of belt dressings on the market that combine both qualities to a degree.

Rosin will prevent temporary slippage of a belt but it is very damaging to the material and should be used only when there is no other course open.

Belts are more durable and work more satisfactorily when made narrow and thick, rather than wide and thin—provided the belt is sufficiently pliable so that it will bend readily to the diameter of the smallest pulley on the drive.

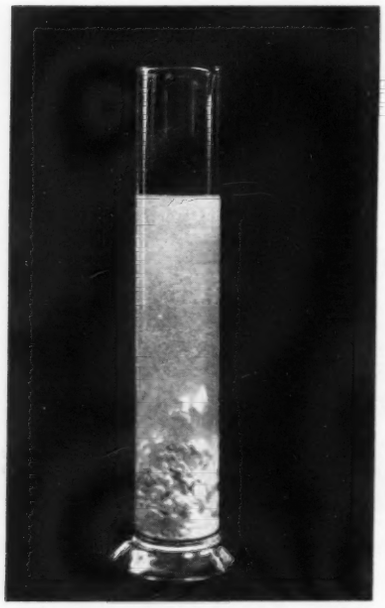
If the tension on a belt is higher than it should be, the belt will stretch excessively and may pull crooked, and the outside surface of the belt may crack. If the laps open up the belt probably is too thick for the diameter of the pulleys; another indication of this is when the plies start to separate.

A belt running in the wrong direction will be indicated by the outside points of the laps opening. Laps on the side of the belt away from the pulley should point so that windage and rubbing will tend to close and not open them.

Dry rot of a belt indicates lack of dressing, and oil rot indicates exposure of the belt to lubricating oil.

A belt too small for the power to be transmitted will stretch excessively, which will result in short belt life, as most leather belts are in danger of breaking if stretched much over 10 per cent.

Another New Fiber from the Test Tube: Aralac



Another textile fiber from the test tube. Aralac is made from casein, a constituent of skim milk. Photo shows coagulated skim milk, with the casein curds at the bottom and the liquid whey at the top . . . .

THE ADVENT of a new fiber is described here. It came from experiments to find further commercial use for the casein fiber in skim milk left over from dairy processing. In the fall of 1939, hat manufacturers found it suitable to replace rabbit fur; then, within recent months, textile manufacturers confronted with priorities and scarcities, found it developed for blending in spinning with the established fibers, natural and man-made. Aralac is available in several sizes, cut to any length up to six inches, for blending, up to 50 per cent, with rayon, cotton and wool . . . . . .

ARALAC is a protein base fiber. It has commonly, but erroneously, been referred to as a casein fiber. It is something more than that. Silk is a protein, and wool, mohair, and furs are combinations of proteins. But casein, as we know it and in its unmodified or even in its regenerated state, is not suitable nor acceptable as a commercial textile fiber. Nor, for that matter, are any other proteins when made into man-made fibers. In substantially all other types of man-made fiber, the major part of the chemical work is accomplished prior to spinning the fiber, so that the finishing job is primarily a physical one. In the manufacture of Aralac, an acceptable commercial fiber can be made only when the major part of the chemical work is done on the protein after it is formed into a filament. Basically, it is a resin made from a protein base filament. The physical nature of the filament is maintained while the chemical nature is being changed.

In chemical compositions, Aralac is similar to wool, mohair and fur. In modifying the protein, we must tighten and load up the hungry, thirsty, and loose-jointed arms of the protein molecule and, at the same time, unroll the molecule from its globular state so it will behave as you expect a protein fiber to behave. If it does not yet have the strength of silk, the felting qualities of fur, or the full loftiness of wool, it is probably because time has been lacking to develop the necessary processes and equipment, or we have not yet found or selected the most suitable possibility from among the many thousands available to us.

To date, we have selected those processes which give to Aralac the principal outstanding requirements asked for by the textile industry. Improvements are being made as rapidly as possible, but from now on Aralac is a commercial mass production fiber and no basic change is made until the consumer is thoroughly acquainted with the improvement. However, the future of such a fiber offers almost limitless possibilities bounded only by our energy and ability to produce and the ability of the textile industry to utilize.

In order to describe the source of our basic protein raw material, let me trace the origin of the protein. Basically, we have air, sunshine, water and earth from which to derive any new material. Proteins require carbon, hydrogen, oxygen and nitrogen for their formations. Some proteins add a bit of sulphur, phosphorous and other mineral elements. If we take coal, water, air and limestone and furnish electrical or heat energy, we combine our elements and form a number of chemicals. Among these are the raw materials for nylon. If we let sunshine do the work and instead of coal, we let nature

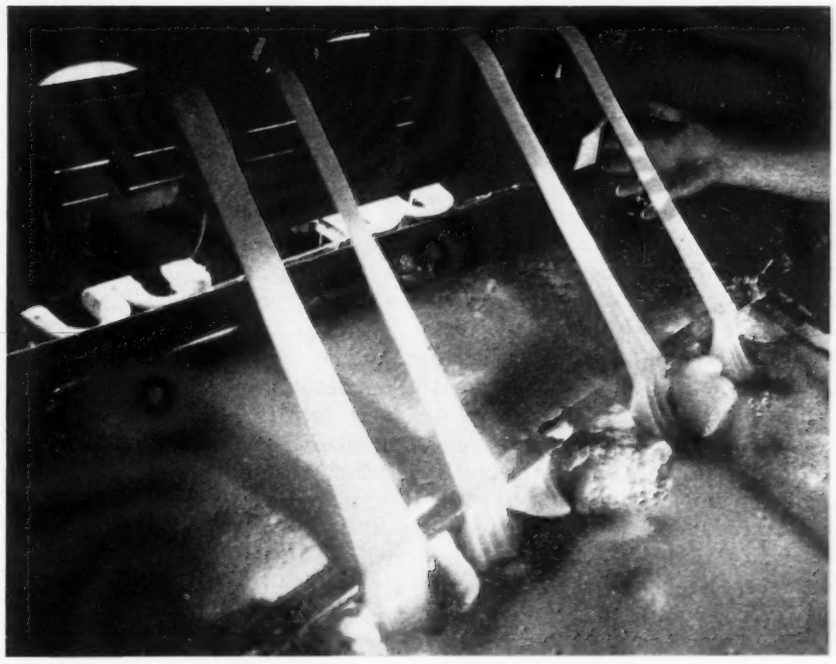
This shows a spinneret through which honey-like viscous casein is converted into fibers. To show the fiber at the exact moment when it emerges from the spinneret, the operation was simulated in a glass-enclosed case, using a chemical solution more transparent than that in which the spinneret normally is immersed. The spinneret contains holes, through which viscous casein is forced under high pressure. The fiber is not a solid mass, as it appears to be, but thousands of different strands . . . .

Abstract of an address by Francis C. Atwood, vice-president, Aralac, Inc., before the Philadelphia Textile School Alumni in New York City.

utilize the carbon dioxide of the air, then we grow high protein crops, such as clover, alfalfa, hemp, beans of all kinds, nuts, and many other natural products high in protein content. Many of these proteins have been formed by certain bacteria in the soil which combine nitrogen from the air with moisture in the soil. These bacteria are highly necessary and useful in our life cycle. The nitrogen content of protein is the distinguishing factor and nitrogen is not present in cellulose, starches or sugar.

We could separate the protein from the natural products—beans—at this point and make our fiber. Nature, however, has very cunningly given us mechanisms for making a certain selection of these proteins and transformed them into a variety of new foods. Sheep eat the proteins and transform them into the meat for us to eat, wool for textiles, and hides for leather. Cows do the same. Their fur is too coarse for textile use, but they give large quantities of milk; so we use cows for meat and hides and also as a milk producer.

The separation of protein from beans is a fair-sized job. It is much simpler to separate protein from milk and the selection of proteins, which nature has made inside the cow, is very helpful to us in making a fiber. Milk, as it comes to a creamery, is first put through a centrifuge to separate the fat as cream. The remaining skim milk is now treated with acid. The acid curdles or coagulates most of the milk protein leaving whey. We separate this protein from the whey, wash and dry it, and ship it to our plant. By this process, we avoid the necessity of doing any chemical work on our product prior to the time we spin it. At our plant, the dry milk protein is carefully but simply dispersed into a thick, viscous syrup, extruded through spinnerettes, coagulated and regenerated into a filament. Now our real work begins. The very numerous free amino groups of our protein molecule must be so inactivated or blocked out at the rate of dye intake and the selection of dyes may be controlled. By the same or similar treatments which may also affect the free carboxyl and hydroxyl groups, other important properties of the fiber may be controlled and improved. These steps or processes are called hardening or acylating reactions. When we get through, we have transformed an easily dispersed protein, easy to hydrolyze, easy to peptize, and with no dye sense, into a resin which will withstand boiling water, weak acids, peptizing and protein-splitting agents, and a resin which has acquired a judgment and reaction toward dyes similar to common animal fibers.



In this photograph, the foamy mass conceals four spinnerets in the spinning box. This is an unretouched photograph of an actual operation in making Aralac. In the four tapes are thousands of strands of fiber. The hand at the right indicates translucency and relative size . . . .

There are so many possible reactions by which our protein base may be resinified that we naturally must make important decisions during this part of our process, which are based on the properties you ask for in a textile fiber. Already we have had to make a different fiber for the hat manufacturer than for the textile manufacturer. Fur is somewhat different in its properties, behavior, and is treated quite differently when used in hats than when spun into cloth. In hats, carrotting agents are used; in textiles, you have scouring and fulling agents and many other points of difference. It is these differences in manufacturing procedure which seriously concern us. You have spent literally centuries in determining the optimum working conditions in your textile plants when using cotton, wool, and silk. You have spent at least 30 years or more in learning how to handle man-made fibers from cellulose, whether nitrate, acetate, or regenerated from zanthate. Aralac must quickly and easily fit into your standard conditions where possible, whether in woolens, worsteds, merinos, or in mixtures with rayons from viscose or acetate.

It is enough for us to know that very slight changes in sizing, scouring, tinting, fulling, dyeing and finishing can make startling changes in quality of the finished fabric. One piece of grey goods may be finished to have a hand as soft in feel as cashmere, whereas another piece of the same goods by a different treatment in another mill will come out hard and harsh. You have had this happen in your own standard fabric and Aralac is not immune to such differences. We can suggest the chemical nature of Aralac and leave it to your good judgment as to how it should be treated in your mills.

Let us face some of the inferential criticisms you may hear which are not true. I have heard it said that Aralac cannot be a true fiber because the raw material from which it is made is essentially non-fibrous in nature and not inherently tough and coherent. Can you imagine any tougher articles than well-known casein plastics such as buttons? There are very few adhesives as coherent or adherent as casein glues. There are very few materials which have resisted deterioration through the ages as well as many decorations using casein as the base material. Certainly the fact that viscose and rayon may have been wood pulp originally helps the rayon chemist very little in orienting his molecular structure, else it would not have taken him 40 or 50 years to get his fiber to its present state of development. And, the fact that the cow is but an intermediary processor in transforming natural fibrous material into a selected and partially treated raw material for us is no hindrance to our work of properly orienting our molecule.

Or, again, you may be told that Aralac does not have inherent resistance

(*Continued on page* 118)

Letters from a New Overseer to a Second Hand Back Home

—No. 3—
Seniority rules, smoking in the mill, etc.

Dear Frank:

I have your note in which you said that the fellows at the Alpha Mills were anxious to hear more about the way we do things at the Beta Mills, and that they were especially interested in the labor problem—more correctly, labor *problems*. Now, you know many of the mill men in the South are afraid to face squarely the subject of labor organization. Many companies already actually do more for their help than is done in many mills which have strong labor organizations, but with the government definitely behind the labor unions it is going to be hard, in many cases, to keep the unions out. So the more we all know about the whole thing, the better able we will be to deal with these problems when they arise. I firmly believe the facts should be thoroughly aired. The law forbids the employer's advising his employees as to the true facts regarding the labor unions, but so far as this writer knows there is no law preventing a discussion of these things in the local papers, the daily press and the textile magazines.

Now I know you will be interested in some specific problems with which we are confronted in a mill having a contract with a union. A part of the agreement consists of Shop Rules which govern certain relations between the overseer and his help, and which outline definite procedure to follow in handling various matters. As an example, Shop Rule No. 3 reads: "A job becoming open as a permanent vacancy shall be *posted* for a period of five (5) full working days in the department, by the Overseer. The senior qualified worker bidding on the job in such time by giving written bid to the Overseer, with copy to the department Shop Committeeman, shall be assigned * * *"

In plain English this means that when a job becomes open the overseer can no longer decide who is the most capable employee, and by reason of study and hard work, the best fitted for the job, but must follow a definite, cut-and-dried rule, giving the job to the oldest, qualified worker, who makes the "correct" application for the job to the *overseer* and the *shop committeeman*. Although the qualifications of a worker are to be considered, it sometimes happens that a younger man is much better qualified for a certain job than an older worker, but if the older worker is *qualified* in the sense that he is able to run the job then you have to give it to him—after consulting the shop committeeman.

This rule had a reaction in the case of a young union member, who for a time attended a textile class that I was conducting in the local high school. He was a weaver, but he had some aspirations to learn to fix looms, and was complaining, in the class, about not getting the chance to learn to run a section. As a textile class instructor, I had this to say to him, "You know we are working under seniority rules. This is a fine thing for the older workman, who might not have much other chance for advancement, but it is tough on an ambitious young fellow, like yourself, who would like to advance rapidly. You will just have to wait your turn." He seemed to see the point.

We have rules to govern the work of spare hands, the assigning of overtime work, the granting of leaves of absence, the loss of seniority and things of like nature. Perhaps I shall discuss some of these rules in a subsequent letter.

Doubtless some of the fellows from the Alpha Mills, who have visited us here, have told you about our mill management allowing the operatives to smoke during working hours. You see we have a cafeteria, or store, inside the mill, operated by an outside individual. The cafeteria does not operate a lunch wagon, as you do, but the operatives go to the store for their drinks, sandwiches, hamburgers, candy, ice cream and what not. And for three hours on each shift they may smoke. The theory is that if an operative is allowed this privilege he will come back to his job refreshed, and do better work. Naturally he is supposed to pick his chances, at some time during this three hours when his job is in best shape for him to leave it or when his "neighbor" can watch it.

This is a fine thing, we think, if everybody would do the right thing about it. The fact is, however, that many operatives abuse this privilege by leaving their job "in the hole", by going to smoke two or three times during the three hours and by staying away from their job too long. This puts the burden on the overseers and second hands to try to curb these abuses all possible—a very difficult assignment, I can assure you, especially so because some of the second hands, and even some of the overseers, will go to the office, several times during the day, at *any hour* that suits them, and while there enjoy a cigarette. And the operatives know this. How would you handle this problem?

To further clarify some questions which may have arisen in your mind in regard to the employees having to go to the cafeteria to get their drinks, instead of having the drinks brought to them as you do by means of your lunch wagon, I will say that sometimes one hand will go to the cafeteria and carry drinks to certain of his "side" operatives who did not see fit to leave their work. Again an operative may go to the store, buy his drink and a sandwich and return to his work. All of this creates problems such as bottles thrown in yarn boxes or in waste cans, or left on the floor or, I am sorry to say, even thrown out the windows, and lunch papers handled the same way. We have endeavored to improve this condition by providing bottle boxes and cans for waste paper. This helps some, but does not solve the problems entirely.

As you know both the Alpha and the Beta mills

This is the third in a series of letters from "John", who recently left "Alpha" mill to take his first overseer's job in "Beta" mill, in another state. He is writing back home to "Frank". The first letter appeared on page 81 of the November 1941 issue, and the second on page 96 of the January 1942 issue.—The Editor.

make a lot of the same kind of goods, that is heavy duck for the mechanical trade, numbered ducks, army duck, etc. Here at the Beta mills we also make, as you probably heard, twills, fancy drapery and certain other fabrics not made at the Alpha Mills, so for this reason the production department has complete charge of all changes made in the weave room. This department furnishes the weave room with all drawing-in and chain drafts, and approves all samples before the looms are started. Here all cloth organizations are originated—on instructions from the selling office—and all information as to ends, reeds and yarns given to the weaving and beaming departments.

We have a drawing-in room, for we draw many warps that you would tie right on the loom. This procedure has one decided advantage, in that the harness and reed are removed from the loom and brought to the drawing-in room where they are cleaned with air and repaired. Naturally this cleaning and repairing of the reeds and harness makes for better loom efficiency. This puts more work on the beaming room, however, for we have to put lease combs on the warps, instead of lease paper, and it is, of course, more trouble to put the combs on the warps than it would be to put the lease paper on, as you do.

Well, Frank, I do not want to bore you with too long a letter, so I will close for this time. Let me hear from you some time.

Your friend,
JOHN

Pepperell Foremen's Club Studies First Aid

Since the Foremen's Club of the Pepperell Manufacturing Company, Biddeford, Me., has been organized, it has been customary twice a year to combine a safety conference with the regular monthly meeting. This type of meeting was held January 17 with executives, departmental office heads, plant physician and nurses attending.

Miss B. F. Ray, who heads the Pepperell clinical departments, presented a descriptive talk on first aid, an especially timely topic for industries on the northeast coast of our country. Following the first aid demonstrations by Miss Ray, Herbert Ward, safety consultant for the Paige Foundation, Inc., Boston, offered suggestive ideas on increasing safety among the employees, simultaneously impressing the foreman with their responsibility on this subject.

The meeting was rounded out with humorous talks and music.

◆

1941 Record Production Year for Cotton Textile Mills

Production by the cotton-textile industry in 1941 set a new record figure of 11,898,000,000 square yards, according to the Annual Report of W. Ray Bell, president of The Association of Cotton Textile Merchants.

Citing the industry's defense and war effort in the past year, the report states that all previous records for spinning activity were broken, cotton consumption reached 10,575,000 bales, and 11,898,000,000 square yards of cloth were produced—2,300,000,000 square yards more than the previous record (1940) and 3,500,000,000 square yards above average annual production for the five years ending with 1939.

"As of November 1," the report points out, "the Quartermaster General stated that purchases of apparel fabrics and findings were being procured on the basis of an Army of 3,200,000 men, while other clothing items and equipage had been purchased for 2,000,000 men. Military purchases during 1942 are sure to be more than are needed by the present schedule of 3,600,000 men. This means, without any question, that a larger share of production will have to be devoted to military and naval goods. Huge programs for ducks and other tentage materials, drills, and osnaburgs have already been announced."

◆

1941 Textile Fiber Consumption Again Breaks All Records

Due to greatly increased war requirements, United States consumption of the four major textile fibers (cotton, wool, rayon, and silk) again broke all previous records, states the current issue of the *Rayon Organon*, published by the Textile Economics Bureau, Inc. Total consumption of the four major products aggregated 6,470,400,000 pounds as compared with 4,896,100,000 pounds consumed in 1940. The magnitude of these figures is strikingly revealed by the fact that the 1941 increase amounted to 32 per cent as compared with the previous year.

"The tremendous increase in textile fiber consumption during 1941," states the publication, "indicates the impact of military, naval, industrial and consumer demands for textile products which have arisen as a result of this country's transition from the twilight zone of war, peace and confusion to a war economy. Meanwhile industrial activity moved ahead, thereby creating a greater demand for textile products. Similarly, the nation's purchasing power increased and the civilian consumer took advantage of bigger pay envelopes to buy more clothing, household furnishings and other textile products."

The consumption of raw cotton in 1941, as is natural, again led all other products, reaching a new all-time record of 5,207,200,000 pounds, an increase of 31 per cent over the consumption of 3,961,700,000 pounds reported for 1940.

Wool consumption in 1941 amounted to 652,200,000 pounds, or 54 per cent greater than the 21-year high of 422,400,000 pounds established in 1923. Of the 1941 total scoured wool consumption, 133,300,000 pounds represented carpet-class wool and 518,900,000 apparel-class wool. The favorable 1941 wool performance was due primarily to the Government's demand for wool textiles for the nation's fighting forces.

Rayon consumption in 1941 (yarn plus staple fiber) aggregated 586,000,000 pounds, another new high mark, surpassing the record previous year by 20 per cent. The demand for rayon during 1941 was primarily civilian in character. Consumption of rayon last year was three and one half times as large as it was in 1931, a performance unequalled by any other textile fiber.

Approximately 25,000,000 pounds of raw silk were consumed in the United States last year, the smallest total since 1920. This figure, in part, is an estimate, as December silk deliveries to American mills was not announced. The low raw silk consumption last year was due to the cessation of imports from Japan during the last five months of the year and the subsequent reservation of the country's raw silk stocks for military and naval use only.

The following table shows 1941 consumption of the four main textile fibers as compared with recent years:

(in millions of pounds)

	1941	1940	1939
Cotton	5,207.2	3,961.7	3,629.7
Wool	652.2	411.1	396.5
Rayon	586.0	487.5	458.5
Silk	25.0	35.8	47.3
TOTAL	6,470.4	4,896.1	4,532.0

CURRENT TEXTILE TOPICS

Transformed industry

CONSUMPTION of domestic cotton for the year ending July 1, 1942, may reach 11,500,000 bales through the extraordinary textile activity in this country. This total, estimated by the Bureau of Agricultural Economics, would mean 1,750,000 bales above the unprecedented volume of 1940-1941.

Until the war started the cotton textile industry had increased production sufficiently to take care of defense needs and normal civilian trade demand. It was figured that production for civilian requirements was running fully up to the average of volume in the years 1935-1939 albeit that did not allow for the increased purchasing power of the public since June, 1940.

War has brought a further transformation and how the civilian trade needs will be filled in 1942 stands, at least for the first part of the year, as a big question. During the defense program, military demands reached about 30 per cent of the full output, whereas by the end of January the call outside civilian trade was around 40 per cent and still looking up.

Speedy requirements distort situation

By this time, the country has learned that "business as usual" has gone overboard. Extra purchasing power of the consumer had best be conserved against the ultimate new day of peace times and production again chiefly for civilian needs. Certainly it cannot go for increased buying of merchandise for the population as a whole since the outlook even for an average supply equal to the pre-defense volume is decreasing.

Direct military needs and other requirements for war purposes are thought likely to reach 50 per cent of mill output in cotton goods. If half of this should go for war purposes, the supply for civilian trade would fall far short of the 1935-1939 yearly average, or 697,000,000 yards monthly.

Accentuating the problem of caring for civilian requirements, the stress upon speed in military demands in the early months of the war has distorted the mill situation. Thus 40 or 50 per cent hardly represents the demand ratio for the time being. Trading the first part of February was predominantly against government orders, after rush orders of great volume during January in ducks and other heavy fabrics.

New production calls upon mills

Duck mills were not prepared for the government demand in January for 200,000,000 yards to be supplied within the first half of 1942, not to mention further needs to be met subsequently. These mills were heavily sold ahead already on military fabrics. The result was a problem for other mill divisions, as the government had to find a source for the duck or substitute cloths.

Even the order eliminating distribution of duck for civilian purposes did not leave output from the regular mills adequate for the government. The only recourse naturally was to impress other mills for such production. There were idle facilities available in tire-fabric plants and in carpet mills to partially relieve other cotton mills, although costs were a bothersome factor in such divisions.

Active priority business in February kept the pressure on the cotton industry. Included were millions of yards of osnaburgs toward a proposed stockpile of 200,000,000 yards for sandbags and agricultural bags. Print cloths for shorts in the various services, goods for comfortables, tickings for mattresses, denims and other goods for various military purposes were in the priority business.

Civilian trade complications

Altogether the market for civilian goods had little play and no immediate promise of improvement. The trade was facing deferment of deliveries on orders in hand and cautious about accepting further contracts, in view of the need to be ready for more unexpected business against government requirements.

Meantime, the markets for finished cotton goods were disorganized by the December blanket order freezing prices at the highest levels from November 1 to December 6. Raw cotton rose almost 20 per cent from November 1 to January 27 and gray cloths correspondingly under the sliding scales. Yet finished goods remained pegged at an unchanged level, although the freezing order was understood to be temporary.

This condition began to be remedied by O. P. A. in the first part of February. A bit of improvement resulted from the check to rising cotton prices, which by the way demonstrated for gray cloth manufacturers that the market could react and that the sliding-scale worked both ways.

Price complications bade fair to develop another phase toward the middle of February. Goods prices are related to raw cotton fluctuations, but take no account of wage changes.

More raw cotton for wool mills

New uses for cotton are another feature of the current situation, chiefly as a result of shortages and conservation for war purposes in other fibers. Drastic measures for conservation of wool are the most recent notable instance. With wool manufacturers being restricted on their regular raw material for civilian apparel, a substantial use of cotton is foreseen.

Robert R. Guthrie of the O. P. M. warned retailers that many new kinds of products would be necessary under the war economy. High percentages of re-worked wool, cotton and rayon staple fiber must be substituted for virgin wool, if distributors of apparel are to meet the civilian demand later in the year.

●Two-piece slacks suit for the teens, crisply tailored in rose Teca blend, a smooth, chevron-striped weave from Roseline, containing Eastman crimped acetate rayon. This featherweight fabric resembles fine worsted, is easy to keep looking neat and well pressed, because of its high resistance to wrinkles. Courtesy, Tennessee Eastman Corporation.

New England Mill Situation

BY THE MIDDLE of February, the cotton mills of New England were reflecting notably the pressure of government business to meet the present crisis. One publication estimated that from 60 to 70 per cent of the cotton yarn output was being allocated for government use. Thus fine goods were joined with the coarser constructions in the transition of the cotton industry under war.

High percentages of goods for war requirements from the northeastern mills were the more outstanding from the fact that they were based upon a sharply expanding output. The government statistics of mill activity in January showed this tendency, with consumption of raw cotton nearly up to the Defense peak of last October.

In that fall month the mills consumed 119,319 bales of cotton. Then came a dip in November to 99,122 bales, as trading stalled under price confusion. December and war brought a rising tempo and the January consumption of cotton was up to a total of 114,727 bales. This high figure, moreover, was achieved in the face of declining business in civilian lines.

Capacity held in reserve

Mills have been doing some business right along with their usual trade, but buyers have got nothing like the desired quantities of goods. Converters have faced pressure from distributors, but the latter also find their demand deferred as the former seek to accumulate gray goods. Mills have felt compelled to hold manufacturing capacity in reserve for unexpected government business above the heavy volume they have already been getting.

Hardly more than a trickle of orders for fine goods was apparent in the market around the middle of February, for civilian needs. Combed cloth manufacturers were involved with manufacturing details concerning government orders. The business of this sort was spreading around special constructions in addition to the staple lines.

Production has undergone much change under the Defense and the war programs. Noting that consumption of cotton in the North in 1941 was the largest of any year since 1929, Russell T. Fisher, president of the National Association of Cotton Manufacturers, points that this is the more significant in view of a drop of 9,000,000 spindles in place. This he finds due to more shifts and demand for heavier-yarn fabrics, as well as increased efficiency of the spindle today.

Staple cotton scarcity looms

February found the cotton mills facing a scarcity of the staple cottons to meet the imperative demand. Very little was being offered in the desired types for future delivery. The mills were said to be supplied comfortably for three months ahead, but the outlook for May and beyond was serious.

Upward of 300,000 bales of government-owned cotton were in storage in New England, running from 7/8 to 1 1/16-inch. This was suggested to be a possible source of relief though the mills wanting such cotton were said to be a limited number. Another suggestion was that mills might have to resort to other than their regular staples where they wanted 1 3/16-inch cotton.

Mills not only have been confronted by a stringent position in supplies, but the market has been bullish for the staples involved. Some manufacturers have resorted to substitution of Egyptian and Pima cotton for relief from scarcity. A tight position in the long staples is indicated until the new crop becomes available.

Wage demands up to mills

At the time of writing, the Textile Workers Union of America, C. I. O., was inaugurating a series of demands for an increase of 10 cents an hour for the workers in New England mills. The requests were predicated on the increased cost of living.

Significant of the improved employment by mills, meantime, were some figures from Rhode Island for December. The number of man hours for cotton manufacture was 19.3 per cent larger than that for December, 1940.

Manchester, N. H., has had a rejuvenation of textile activity. The former plant of the great Amoskeag Manufacturing Co., which collapsed in the depression, now has a group of industries employing more than 8,000 workers. Many textile mills are included.

"THE SITUATION" as Seen Across an Executive's Desk

February 20, 1942

Singapore Falls

AS THIS is being written, the Japanese have taken the last stronghold of Singapore. This means the Malay Penisular with its much heralded fortress, Singapore, is in temporary possession of the Japanese. This life-line runs to Borneo, Celebes, Ambonia, Wake Island and a stronghold in the Philippines. Rangoon and the Burma Road are seriously threatened. The forces of preparedness are matching their forces with those of unpreparedness. The only hope that glimmers, and it is a confident hope, is that when this nation gets itself geared to the tempo of this terrific and catastrophic struggle, the ideologies of barbarity will be driven out and those of democracy and freedom will prevail. This means that America, England and their allies must and will win.

America and the War

The terrific drain on this nation, as the "Arsenal of Democracy" by other nations, the unusual strain of this nation to meet this demand and at the same time develop its fighting forces to the necessary strength, has made our efforts so scattered that many people fail to appreciate the wonderful contribution that we have made. Pearl Harbor accentuated the situation exceedingly much because many people, while anticipating war with Japan, expected it to be delayed until later in this year. The die is cast however and every citizen must realize that it is a struggle for "life or death". Every citizen must do his part in services or money or in sacrifices. Today there is a greater threat of invasion to this nation than has existed in the war so far. Singapore's fall has prolonged the war at least a year and maybe longer. The reactions in our national and economic life are evidence of its influence.

The Drive for Higher Wages

Evidence is accumulating that the drive for higher wages this spring may equal or eclipse the widespread campaign last year.

The Steel Workers' Organizing Committee of the CIO is already negotiating with four "Little Steel" companies for concessions which would increase the companies' wage costs by $40,000,000 annually. The United Automobile workers, CIO is also asking substantial wage increase from General Motors.

The union slogan this spring is to be "an additional dollar a day," instead of the 10 cents an hour sought, and won, last year. The oil, aluminum and electrical manufacturing industries all face wage demands. Employers are quite likely to resist vig-

orously. It will thus become the War Labor Board's duty to straighten out wage disputes which may threaten a further upward movement in prices, despite Government efforts to hold them in check.

A Longer Work Week

Enactment of Senator Reed's bill amending the Fair Labor Standards Act to make the 48-hour week standard for the period of the war would be a logical and highly constructive move. It would give explicit recognition to the fact that the general shortening of the work week, which helped spread available work during the depression, is a wholly inconsistent policy now when the nation faces a mounting labor shortage.

The 40-hour work week cannot possibly be defended as a sound standard under present conditions. Surely, no one would argue that this represents the limit of working time per week for the average, able-bodied man or woman. The war cannot be won unless a considerably longer work week is put into effect. With millions of men being drafted into the Army, an extension of the standard work week from 40 to 48 hours would be a very mild balancing sacrifice on the part of the rest of the population.

A 48-hour standard work week would also help armament and other essential plants to arrange shifts that will assure round-the-clock operations without incurring abnormally heavy added costs due to overtime.

The Minimum Wage

On February 20, 1942, a public hearing was held on the recommendation by the textile committee that a minimum wage of 40 cents an hour be established in the textile industry.

The industry, which includes the manufacture of all yarns and textiles except synthetic yarns and knitted and woolen textiles, has been under a 37½ cents an hour minimum wage order since June 30, 1941.

A change in the definition of the industry for the purpose of establishing a minimum has added the manufacture of nonwool carpets and rugs. The minimum wage for this manufacture was 35 cents an hour. There is little doubt but that the Administrator will validate the recommendation of the committee.

As a matter for the record, the Commissioner of Labor Statistics of the U. S. Department of Labor issued on February 3, 1942, the following figures concerning the operation of the cotton textile industry in November 1941: Average weekly hours worked North 37.8, wages 58.1 cents per hour, average weekly hours worked South 39.5, wages 48.1 cents per hour.

Rationing

While no general system of rationing of consumer goods is planned in this country, selective rationing is already assured. Sugar, automobiles and tires are being rationed, and there can be no question that other imported articles and those made particularly scarce by the war efforts will become subject to similar controls as time goes on.

Rationing is of two main types. First, it may be designed to divert available supplies to "essential" users exclusively. Secondly, the purpose may be to make the commodity involved available to all consumers, but to limit the amount that each may purchase. Automobile and tire rationing is of the first type; sugar rationing of the second.

The first form of rationing, restricting supplies to essential uses, is particularly difficult to carry out. Shall new automobiles be allowed defense workers who can prove they have no other means of transporation from home to job? If there are not enough new cars available for essential consumers, shall rationing be extended to the used car market? These and many other questions will have to be answered in the car rationing order, which is scheduled to begin to functioning on February 26, and in subsequent amendments.

Annual Fiber Consumption

The statistical records of the four principal textile fibers during 1941 have been briefly summarized by *Rayon Organon* as follows:

The consumption of raw cotton in 1941 reached a new all-time record of 5,207,200,000 pounds, an increase of 31 per cent over the previous mark set in 1940.

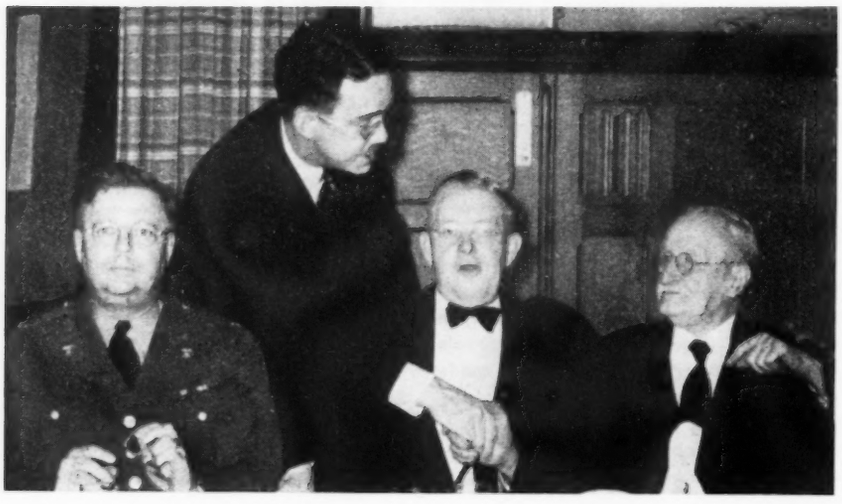
The 1941 consumption of wool at 652,200,000 pounds was 54 per cent greater than the 21-year high of 422,400,000 pounds established in 1923. Of this total 1941 scoured wool consumption 133,300,000 pounds represented carpet-class wool and 518,900,000 pound apparel-class. Wool, to even a greater extent than cotton, owed the excellence of its 1941 performance to the Government demand for wool textiles for the nation's fighting forces.

Rayon consumption (yarn plus staple fiber) in 1941 at 586,000,000 pounds set another new mark, surpassing the record of the previous year by 20 per cent. Looking back over the record of rayon consumption during the past decade one cannot but be impressed by its growth rate. Thus

At P. T. S. Alumni Banquet

At the 41st annual banquet of the **Philadelphia Textile School Alumni**, in Philadelphia, on February 20. At the left are seen **Alexis Sommaripa**, on leave from duPont Rayon as a textile specialist with the War Production Board, who was one of the speakers; and **Clarence L. Ederer**, president of Ederer, Inc., who is president of the alumni association, and who served as toastmaster.

Below, at the banquet. In uniform, **Colonel Vere Painter**, of the Philadelphia Quartermaster Depot. In tuxedo, **Theodore B. Hayward**, of Swift & Co., a member of the schools instruction committee. Standing, **Robert W. Philip**, editor of "**Cotton**", shaking hands with **Dr. E. W. France**, dean emeritus of the Philadelphia Textile School, who retired after more than 50 years of service as head of the institution.



rayon consumption in 1941 was more than three and one-half times as large as it was in 1931. This performance is unequalled by any other textile fiber.

Raw silk consumption in 1941 approximated 25,000,000 pounds and was the smallest total since 1920. This figure of 25,000,000 pounds is in part an estimate, inasmuch as December silk deliveries to American mills were not published by the Commodity Exchange, Inc., and therefore were estimated and included by us to obtain the annual figure shown. The low consumption of raw silk in 1941 may be attributed to the cessation of raw silk imports from Japan during the last five months of the year and the subsequent reservation of the country's raw silk stocks for military and naval uses only.

Price Control Act

The new Price Control Act creates the office of Price Administrator, who may:

Create a staff under Civil Service Act.
Issue regulations and orders (price schedules) necessary to carry out purposes of act.
Make studies and investigations to obtain information for prescribing regulations, or for the administration and enforcement of the act.
Require that information be furnished under oath.
Require records or other documents to be made available for inspection.
Subpoena any person to appear, to testify and produce documents.
Disclose any information so obtained, if he determines it is in the interest of national defense.
Require a license as a condition of selling any commodity.
Confer with manufacturers, associations of manufacturers, or other groups, and enter into agreements relating to the fixing of maximum prices.

The major features of the Act dealing with the control of agricultural products as follows:

1. Prices of both agricultural products and commodities processed or manufactured wholly or in substantial part from agricultural commodities are subject to control.

2. Only maximum market prices may be established.

3. The range within which maximum prices may be established is restricted. No price may be fixed below 110 per cent of parity nor below certain other specified levels.

4. Purchases and sales by governmental agencies are permitted but are subject to restrictions.

5. Any action respecting agricultural commodities is subject to prior approval by the Secretary of Agriculture.

6. Present and future marketing agreements affecting agricultural commodities, provided by the Agricultural Marketing Act of 1937, are wholly outside the scope of this Act.

Increases in prices of a substantial number of agricultural commodities might take place as they are now below the lowest maximum price which might be established for these products.

The ranges within which the maximum prices may be set are as follows:

1. At or above 110 per cent of parity or of some price which the Secretary of Agriculture may determine as being comparable to parity.

2. At or above the market price on October 1, 1941.

3. At or above the market price on December 15, 1941.

4. At or above the average price prevailing during the period from July 1, 1919 to June 30, 1929.

The Outlook for Cotton Goods

The stoppage of silk imports, curtailed recepits of burlap, linens and other imported textiles, the limitations on the sale of woolen goods and a shortage of rayon and nylon for some uses, must naturally compel both military and civilian consumers to turn to cotton goods for many purposes which were supplied by other textiles before the war.

The production of cotton goods today is at the rate of nearly one billion square yards per month. This would be more than adequate for civilian uses.

During the period from 1935 to 1939 the average monthly production was slightly less than 700 million square yards. It is easy to see that production has been increased 50 per cent.

During the past year the armed forces consumed about 20 per cent of production. This year the indications are that the combined military and defense needs will be at least 500 million square yards. This will leave the civilian consumer an equal amount while last year he consumed about 800 million square yards.

It may be that the mills can manufacture more but the bottle-neck of labor supply and machinery stands menacingly. The figures indicate conclusively that if civilian consumption tends to be as great this year as during 1941, there will have to be some curtailment in civilian consumption.

This may mean that luxury products and non-essential products for civilian uses will have to be curtailed. After the people of this nation finally find out that there is a desperate war on, economies will be effected so that there will be no serious shortages of essential civilian needs.

It will not be possible to operate all mills three shifts seven days per week.

The Duck Demand

Due to the scarcity of jute and the extra military demands for ducks, the manufacturers of duck have been swamped with orders and those mills that have possibilities of producing it are being seriously studied.

As the days go by, it is being discovered that there are substitute materials that can be used in lieu of the regular duck specifications. Only recently the government has issued a revised list of alternate constructions for tentage materials. Other revisions have been made or will be made. With the regular mills running extra time and new mills converting their machinery to this needed duck, plus the new revisions and substitutions made already or in the process of making, it is reasonable to believe that the government will get its needs as specified. The cotton textile industry is proud of its reputation so far in furnishing war materials. It will do everything possible in this instance.

Carpet Mill Situation

The OPM has reached over into the carpet mills with a curtailment that is confusing to them. They, the carpet manufacturers, say that they have a visible supply of 70 million pounds on hand and a like amount either on the water or awaiting shipment.

Consumption last year was approximately 190 million pounds hence a curtailment of 50 per cent would allow 95 million pounds for this year. If this should be the case, the mills now have a supply sufficient to last for one and one-half years without buying any more. They could and would go out of the market and this would stop the flow of coarse wools to this country, thus there would be no accumulating stock piles.

If the government wants the carpet mills to go into war production, they must make duck or blankets. Duck yarns are not available to them and this way seems closed.

If they make blankets they must buy from mills making fine wool yarns and in this field there is a scarcity.

These carpet mills feel that they can make coarse blankets and obviate many of the obstacles. If American troops can not use these blankets they can be sent to Russia, Siberia, etc.

Hosiery Statistics

Completing its statistical record for 1941, the National Association of Hosiery Manufacturers reports that a December rise of 3.5 per cent in shipments of all types of goods lifted the year's total to 152,256,316 dozen pairs, or 11.8 per cent over 1940. Full fashioned hose, affected by the ban on raw silk imports, declined 17.4 per cent in December but, because of expansion in the nylon division, was down only 1.4 per cent for the year, the 12 month total of fashioned goods shipments was 42,656,330 dozen pairs.

The all-nylon hose, lately affected by general transition to combinations with rayon or cotton tops, was still important in December, amounting to 439,932 dozen pairs. In the same month the combination top numbers totaled 593,345 dozen pairs. For the whole of 1941, the all-nylon amounted to 6,919,736 dozen pairs and the nylon combinations, which were knitted only during the last half of the year, to 1,529,807 dozen pairs.

What the Textile Mills Are Doing

United States Rubber Company will soon build a new factory in Hogansville, Georgia, for the exclusive manufacture of asbestos yarns and fabrics. The new building will be erected on land owned by the company adjacent to its Stark Mills. "Asbeston" will be the trade name under which the company's asbestos textiles are sold. Output of this product was greatly increased last July when considerable new equipment was installed in the Stark Mills and the expansion plans under way will double present capacity. The production of Asbeston is based on new processes for making asbestos textiles, patented by the company, work on which has been pursued at Hogansville for the last six years. The company has also purchased the Hogansville plant of Callaway Mills in order that heavy textiles for war purposes might be produced. The plant manufactures duck.

Santee Mills, Orangeburg, S. C., have installed new Abbott winders and a Cocker high speed warper.

Piedmont Plush Mills, Greenville, S. C., have built a new $10,000 warehouse, plans being drawn by J. E. Sirrine and Company.

Cliffside Mills, Avondale, N. C., have constructed an addition to house a new Sanforizing machine.

Bristol Fabrics, Inc., Boston, Mass., is a recently organized concern with capital of 1,000 shares of no par value stock. The company plans operation of a mill for the manufacture of cotton and other fabrics. Max P. Lash of Brookline, Mass., is president and treasurer.

Canisteo (N. Y.). Corporation has reopened its branch mill at Nunda and will use the plant for the manufacture of a silk parachute cloth.

C. H. Masland and Sons, Philadelphia, Pa., now manufacturing duck, have leased space in the Aberle Mills property and will use it for expansion.

Riverside and Dan River Cotton Mills, Danville, Va., have installed Mount Hope swing guiders, supplied by F. W. Warrington and Company, Charlotte, N. C.

West Point Utilization Co., Inc., Fairfax, Ala., will enlarge the plant to provide increased capacity of working waste. Cost is estimated to be $200,000 with machinery.

Rockland (Mass.) Manufacturing Co., Inc., a recently organized concern, will operate a mill for the manufacture of processed textile products of various kinds.

Atlantic Rayon Corporation, Providence, R. I., has organized a subsidiary, the Atlantic Parachute Corporation, for manufacturing nylon parachutes. A portion of the branch mill at Lowell, Mass., will be converted for this use.

American Enka Corporation, Asheville, N. C., is constructing a $40,000 addition to the twisting room. The addition will be 80x200 feet, two stories.

Edwards Dye Works, Philadelphia, Pa., have added 10,000 square feet of floor space to the plant, and with the installation of new machinery, the production will be increased by 50 per cent.

New Publications of Textile Interest

Cochrane Corporation, Philadelphia, Pa. 4-page bulletin No. 3025 covering the new Cochrane-Becker high pressure condensate return system. Typical installation is described showing steam, condensate and make-up lines.

American Society for Testing Materials, 260 South Broad St., Philadelphia, Pa. "Standards on Copper and Copper Alloys", providing in convenient form various specifications and tests issued by the Society covering copper and copper base products. 350 pages, price $2.00.

General Electric Company, Lamp Department, Nela Park, Cleveland, Ohio. "How Light Can Help", showing that light saves time, energy and eyestrain.

Magnus Chemical Company, Inc., Garwood, N. J. "The Care and Cleaning of Hands and Arms in the Industrial Plant", Bulletin No. 51. Written and designed for use by safety engineers, industrial physicians, insurance men, plant superintendents, etc.

Chain Belt Company, Milwaukee, Wis. Bulletin No. 410 giving information and photographs of Rex belt conveyors, apron conveyors and bucket elevators.

Laminated Shim Company, Inc., Glenbrook, Conn. New 8-page booklet giving history of the development of industrial and mechanical applications of the laminated shim since the founding of the company.

Calco Chemical Division, American Cyanamid Co., Bound Brook, N. J. Two bulletins, the first a study of dyeing and finishes of various materials used for black-out draperies and curtains. The second outlining the requirements and giving suggested formulas for dyeing of Army nurses' uniforms, dark blue shades, covered by Army specification No. 8-122.

Gates Rubber Company, Denver, Col. "How the Textile Industry is Cutting Its Operating Costs", a publication carrying 133 pictures taken on a nation-wide survey of the American textile industry, showing how this industry is cutting its operating costs through use of the multiple V-belt drive.

Century Electric Company, 1806 Pine St., St. Louis, Mo. Catalog section on revolving field generators.

American-Marietta Company, 43 East Ohio St., Chicago, Ill. "Valdura Paint Selector", a publication giving a new and handy means of selecting the best type of paint without detailed technical study of properties of all finishes that might be suitable for a given application.

Reeves Pulley Company, Columbus, Ind. 16-page booklet entitled "More Output for Defense", describing and illustrating numerous uses and applications for the variable speed control equipment in defense industries and plants on many different types of machines.

Pittsburgh Plate Glass Co., Grant Building, Pittsburgh, Pa. "Glass and Its Adaptability to Modern Needs", of interest because of impending and actual shortages of metals, plastics and other materials as a result of the war emergency.

Leeds & Northrup Company, 4934 Stenton Ave., Philadelphia, Pa. Catalog Section N-95-163 (1) on simplified signalling controller for automatic testing of condensate purity.

The Todd Company, Rochester, N. Y. "Disbursement Methods—Their Use and Misuse", presenting a brief statement of the subject and outlining a system of disbursement procedure providing maximum protection. Prepared by executives of the company who have made a complete study of accounts payable and payroll practices.

B. F. Goodrich Company, Akron, Ohio. Booklet providing new data on obtaining maximum service from truck tires. One section deals with factors governing truck tire service. Carries charts and tables portraying the value of proper inflation and loads, the dangers in over and under inflation, mismatching of dual tires, etc.

Cleveland Crane & Engineering Co., Wickliffe, Ohio. Booklet No. 2008-A on "Cleveland Tramrail Engineering and Application Data". Photos show many applications of overhead material handling systems.

General Electric Company, Schenectady, N. Y. GEA-3709 entitled "What about This New Turbine-Electric Range Drive?". Gives uses, layout and industrial applications.

Goodrich Electric Company, 4640 Belle Plaine Ave., Chicago, Ill. Timely and interesting folder "Plant Protection Begins with Floodlighting". Illustrates the various styles of porcelain enameled floodlights available to meet the demands for illumination in different locations.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Bulletin B-3028 describing ac. generators for industrial emergency power.

Catalog 28-000 describing electric heating units and controls for industrial application involving the heating of liquids, solids or air.

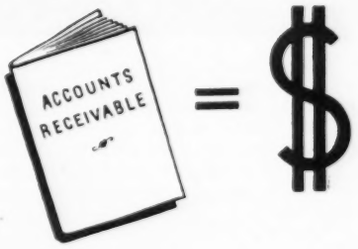
Booklet B-3039 describing continuous ash discharge stokers. Order from Dept. 7-N-20.

South Bend Lathe Works, South Bend, Ind. Bulletin 67-T describing the new No. 2-H turrent lathe adaptable to either long run or small lot production on a wide range of bar, chucking or fixture jobs.

Scheuer & Company, 72 Leonard St., New York City. The 1941 edition of the "Comparative Rayon & Cotton Textile Chart", serving as a ready reference record for sellers and buyers alike.

DeBothezat Ventilating Equipment Division of American Machine and Metals, Inc., East Moline, Ill. "'41 in Review" and looking ahead with the company.

Allis-Chalmers Mfg. Co., Milwaukee, Wis. Bulletin on stepping up production with Vari-Pitch speed changer.



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Could you use more adequate working capital?... Turn your accounts receivable into immediate cash—We buy receivables... Our familiarity with Southern Factoring assures you quick, economical service. We will be glad to discuss your requirements.

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FACTORING DIVISION

TRUST COMPANY OF GEORGIA

ATLANTA, GEORGIA

COMMENT on the COTTON MARKET

New Orleans, February 17, 1942

COTTON continued its upward price movement during the greater part of the second half of January. During this period values rose to the highest of the season and also to the highest levels recorded since 1929. At the highest of this movement May contracts sold at 19.80 in New Orleans and at 19.72 in New York, while October went to 20.09 in New Orleans and to 19.88 in New York. At the same time the average price for Middling $\frac{15}{16}$-inch rose to 20.11 and five southern markets quoted this grade from 20.05 to 20.66 cents a pound.

This advance was due to adoption of the Price Control Bill by Congress with a provision calling for a high ceiling for agricultural products and especially for cotton. The top ceiling for cotton is the average during the years 1919-1929. The average farm value for cotton during this period was 21.47 cents a pound while the average value of Middling $\frac{7}{8}$-inch at the ten designated markets was 22.70 cents. The parity price for cotton was raised to 18.10 as of January 15th and Congress passed an act requiring loans for the 1942 and subsequent crops to be made on the basis of 85 per cent of parity.

The upward price movement was checked near the close of January by a statement from the President at the time he signed the Price Control Bill and threats from the Secretary of Agriculture. Heavy liquidation of long accounts was precipitated on the market by these developments during which values declined over $8.00 a bale with May selling down to 18.17 in New Orleans and to 18.12 in New York.

The President expressed the opinion when he signed the Price Control Bill that farmers should be satisfied with parity prices for their product and that it might be necessary for the Administration to seek a revision of the Price Control Bill in order to correct the high ceilings provided for in that bill or to allow spinners to have CCC stocks in order to enable them to carry out Government contracts. The Secretary of Agriculture, in a public address, said he favored maintaining agricultural prices around parity and threatened to use all the power of the Administration to force cotton prices down to around parity levels. The Secretary has veto power over prices on agricultural products which can be fixed by the Price Administrator.

Other unsettling influences were uncertainty over the effect of CCC sales which were scheduled to be resumed February 16th and repeated rumors in Washington that the Government may call loans on the 1941 crop in order to obtain enough desirable cotton to supply mills working on army and navy orders and thus force farmers and other holders of that crop to liquidate their holdings.

Efforts of the Farm Bloc to pass additional legislation which would prohibit any Government agency from selling any agricultural surplus under its control under parity, or under the ceilings fixed by the Price Control Bill, checked the downward movement during the first week in February. The market has since made a slow recovery, though up to the writing of this, the Farm Bloc has not put through Congress the legislation needed to curb Government agencies. Reports from Washington indicate that the proposed legislation will be adopted by Congress but a veto also appears probable. Prices current as this is written are about a dollar a bale above those of a month ago.

Bids on 300,000 bales, less sales under the Export Subsidy Program, were opened by the CCC February 16th. Bidders were required to make their own offers based on May futures in either New Orleans or New York. The CCC reserves the right to reject any bids. A considerable portion of the bids were based on the New Orleans market. A statement of the bids accepted is not expected to be made for some days. Current estimates are that the bids will run anywhere from 500,000 to 1,000,000 bales. It is not believed that the CCC has over 250,000 bales available for this sale due to previous sales under the Export Subsidy Program. The bounty on export sales has been reduced from 2½ cents a pound to two cents.

The latest statement from the CCC shows it owns 5,386,000 bales of cotton of which, however, only about 500,000 are believed to be desirable. The AAA Act permits the CCC to sell only 300,000 bales a month, or 1,500,000 in one calendar year. Sales from the January offering aggregated 298,294 bales, including about 60,000 sold under the Export Subsidy Program. This figure does not include cotton released under the Lease-Lend Act.

The CCC reports loans on 2,055,496 bales of the 1941 crop up to February 7th and repayments on 122,971 bales. Loan certificates are reported selling from $10.00 to $30.00 a bale, according to grade and location, and are hard to buy even at these prices owing to the holding movement. Private estimates are that farmers and others are holding at least 2,000,000 bales in addition to cotton in the loan. Owners are generally asking 20 cents, or thereabouts, for their holdings. There is said to be no probability that Congress will reduce the tariff on imports of foreign cotton.

Officials of the AAA are touring the South and are urging an increase of 2,000,000 in the acreage planted to cotton over that planted last year with most of the increase going into long staple varieties. The planted acreage last year was 23,250,000. Private estimates indicate only a small increase due to scarcity of labor and fertilizers, especially nitrate of soda which is used largely in the long staple sections. The Weather Bureau reports rainfall in western and central sections of the South during December and January is the lightest since 1886. Temperatures were unusually mild during most of these two months, the Bureau says.

Consumption of 945,909 bales during January was the largest on record for that month and the second largest in history. Consumption for six months is nearly 1,000,000 bales greater than last year and is gaining with each passing month. Mill stocks of 2,495,186 are also at record highs though but little over December. A notable feature is the steady shrinkage in warehouse stocks. As a result of this shrinkage a good authority is predicting a carry-over at the end of the season of 10,343,000 bales, including CCC stocks, compared with 12,026,000 in July 1941. Another authority is predicting consumption of 13,000,000 bales next season. Details of the Census report will be found in another column.

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Piedmont AATCC April 18

The Piedmont section of the American Association of Textile Chemists and Colorists will hold its Spring meeting at the Sir Walter Hotel, Raleigh, N. C., on Saturday, April 18.

CENSUS REPORT OF COTTON CONSUMED AND STOCKS

Consumption of Lint — Bales—	This Season	Last Season
In United States, January	945,909	844,839
In United States, December	887,326	777,482
In United States, 6 months	5,386,363	4,423,446
In Cotton Growing States, January	804,745	718,566
In Cotton Growing States, 6 months	4,575,890	3,784,276
In New England States, January	114,727	102,544
In New England States, 6 months	643,226	518,038
In All Other States, January	26,437	23,729
In All Other States, 6 months	167,247	121,132
Mill Stocks		
In United States, January 31	2,495,186	1,878,231
In United States, December	2,393,782	1,837,091
In Cotton Growing States, January	2,034,095	1,553,605
In New England States, January	383,877	277,190
In All Other States, January	77,214	47,436
Active Cotton Spindles		
In United States, January	23,077,352	22,829,220
In United States, December	23,063,112	22,799,060
In Cotton Growing States, January	17,450,280	17,301,133
In New England States, January	4,977,056	4,909,542
In All Other States, January	650,010	618,026

Export figures are not available.

CONSOLIDATED MOVEMENT FROM AUGUST 1 TO JANUARY 16, 1942
COMPILED BY NEW ORLEANS COTTON EXCHANGE

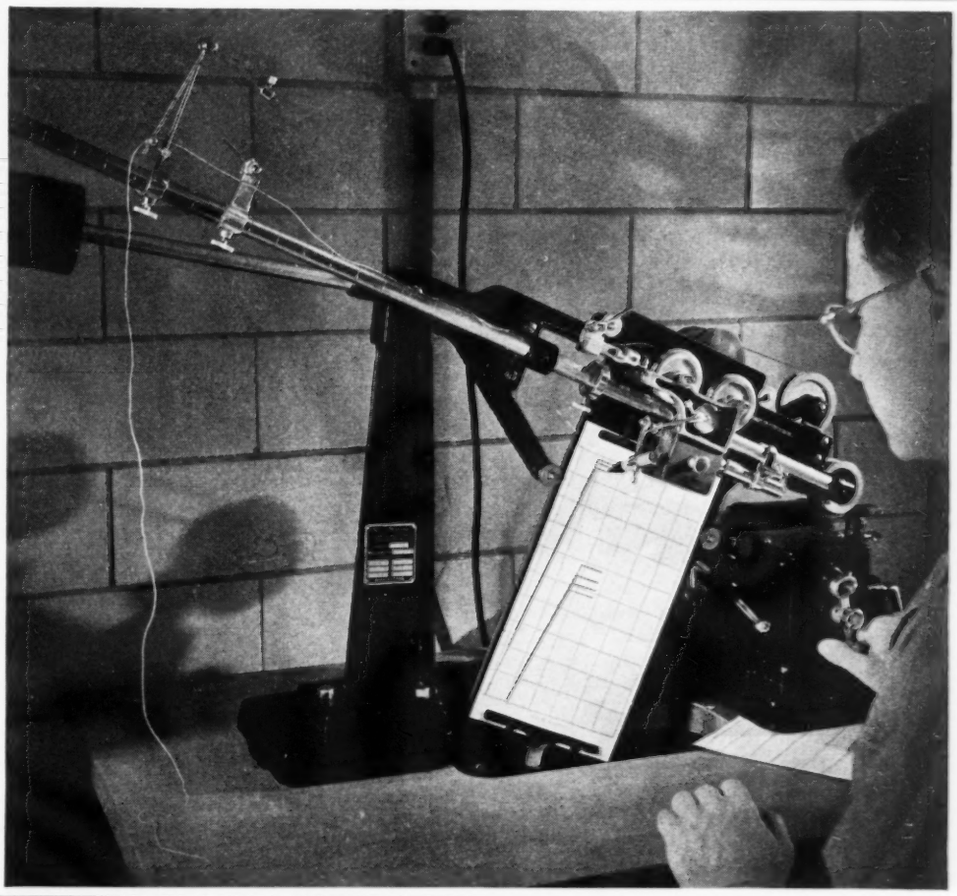
	This Year	Last Year
Recepits at all Ports	2,516,517	2,709,229
Stocks in New Orleans	509,856	537,108
Stocks at all Ports	3,306,572	3,510,530

Why is a yarn ~~weak~~ *strong*?

SCOTT INCLINED PLANE
SINGLE STRAND

YARN TESTER–

THIS machine is designed to measure the tensile strength and the elastic and plastic properties of individual filaments and yarns. The yarn to be evaluated is attached to the rolling weight, and as the plane on which the rolling weight rests is inclined, the tension on the yarn is gradually increased until the breaking point is reached. The friction between the rolling weight and the surface of the plane is reduced to a minimum and an extremely accurate measurement of the tensile strength of fine yarns is obtained. Tension and elasticity data are automatically recorded on a graph, thus giving a permanent record of the sample.



THREE WORDS ARE OUR WATCH-WORDS! *Precision, accuracy, and results* —these are the goals of the Rohm & Haas Textile Evaluation Laboratories in testing and analyzing the cloths and fabrics submitted to us by a textile industry just rolling up its sleeves to meet the increasing demand of a wartime economy.

In these modern, completely-equipped laboratories our technicians, skilled in the handling of fabrics of all kinds, operate delicate testing machines; each machine is specially designed to test precisely and accurately *one* property of a fabric or yarn. Our laboratories are equipped to evaluate and test almost any property which may conceivably be desired in a fabric, whether it be wet strength of a light, tough rayon parachute cloth, crush resistance of the softest velvet, or tensile strength of a single cotton thread.

For a scientific treatment of your particular textile problem, the precision and versatility of the Rohm & Haas Textile Evaluation Laboratories are at your service for the duration.

★ **LYKOPON**
★ **FORMOPON**
★ **PROTOLIN**
★ **RHONITES**
★ **RHOPLEXES**
★ **DEGOMMAS**
★ **TRITONS**
★ **RHOTEXES**

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.

Manufacturers of Leather and Textile Specialties and Finishes . . Enzymes . . Crystal-Clear Acrylic Plastics . . Synthetic Insecticides . . Fungicides . . and other Industrial Chemicals

TIMELY NEWS ITEMS with a TEXTILE SLANT

Oakite Products, Inc., 22 Thames St., New York City, has created two new divisions to meet the demands for products. The New England division, with headquarters in Hartford, Conn., is headed by T. R. Smith, having under him eleven men. The Southwestern division is located in St. Louis with S. C. Shank directing the activities of twelve men.

B. F. Goodrich Company, Akron, Ohio, has appointed John R. Hoover as manager of synthetic sales, succeeding Dr. H. E. Fritz, recently named company director of research. Mr. Hoover has been manager of rubber-lined equipment sales and is succeeded in that post by Herman C. Klein, formerly sales engineer in the department.

Arnold, Hoffman & Company, Providence, R. I., have appointed Walter T. Bunce and W. Chester Cobb managers of the southern territory. This step was necessary since it is expected that Mr. Cobb, who is a reserve officer, will soon be called into the service. Mr. Cobb has been the Charlotte, N. C., manager for some time and Mr. Bunce formerly was manager of the Drysalters Division of Hercules Powder Company, coming with Arnold, Hoffman when they purchased the Drysalters Division last year.

Henry C. Neren, for the last three years general plant manager of American Viscose Corporation, and for 21 years prior to that manager of the company's Roanoke, Va., plant, has retired, but continues as vice-president and member of the board of directors. He has been identified with the rayon industry for 38 years. George M. Allen, assistant general plant manager, has taken over Mr. Neren's duties.

Manning, Maxwell & Moore, Inc., Bridgeport, Conn., has appointed Albert A. Haniford to the sales department to extend the company's program of sales training for company salesmen. He was previously assistant to the director of dealer relations of Johns-Manville. Another appointment within the organization is the assignment of Walter Williams, formerly in the Chicago territory, to the St. Louis territory, succeeding Harold Moore, now in the armed services.

Scholler Bros., Inc., Philadelphia, Pa., have appointed Dr. Edwin C. Dreby, III, to the company's research staff. Dr. Dreby is a graduate of the University of Pennsylvania and received his Ph. D at Yale. For several years he was associated with the National Bureau of Standards as research associate in the testing of textile finishes.

Allis-Chalmers Company, Milwaukee, Wis., has announced that Walter Geist, vice-president, will head a new department established to co-ordinate the company's sales policies, which have become complex because of the company's all-out war effort which puts practically its entire productive capacity at the disposal of the armed forces and manufacturers producing war material.

Samuel C. Harris, formerly assistant director of sales of the R. & H. Chemicals department of duPont has been appointed director of sales, succeeding Charles L. Wiswall, who has been made assistant general manager of the newly created Photo Products department.

Sherwin-Williams Company, Cleveland, Ohio, in order to conserve supplies of steel, will use returnable steel drums on all shipments of industrial finishes, solvents, etc., instead of the single-trip containers formerly used.

Pomona Pump Company, Pomona, Calif., has purchased the Westco Pump Division of Micro-Westco, Inc., Bettendorf, Iowa. The newly-acquired business will be operated as Pomona Pump Co., Westco Division, 2621 Locust St., St. Louis, Mo., and manufacture continued from the St. Louis plant of Pomona Pump Co. Management and key personnel of Westco will be transferred to St. Louis to continue manufacture of the line.

Chester L. Eddy has become sales manager of Augusta Chemical Company, Augusta, Ga., manufacturers of "Acco" sulphur dyestuff and printing paste. Recently he has been with Arnold, Hoffman & Co.; previously was with Renfrew Bleachery. Travelers Rest, S. C.

Recommendations for Black-out Paint

Black, dark brown and dark olive drab paints applied on the outside surface of window glass are recommended for efficient black-outs, according to information received from the Finishes Division of duPont. "While application of black-out paint to the interior of glass is easier," said the report, "the serious disadvantage of this method lies in the creation of a mirror-like effect. Moonlight and flares are more sharply reflected than by uncoated glass. An inside painting job on windows, skylights and doors, therefore, can only be considered as a partial black-out."

Among five black-out methods put under test, the use of curtains and shields was found to be the most practical as well as the costliest, the report said. Shields, curtains or shutters, preferably on the outside, that can be placed or removed as the occasion demands were especially recommended for plants running 24 hours a day. This method not only affords protection from the weather in case of shattered glass, but permits full use of daylight by the workmen when these shutters or curtains are not in place.

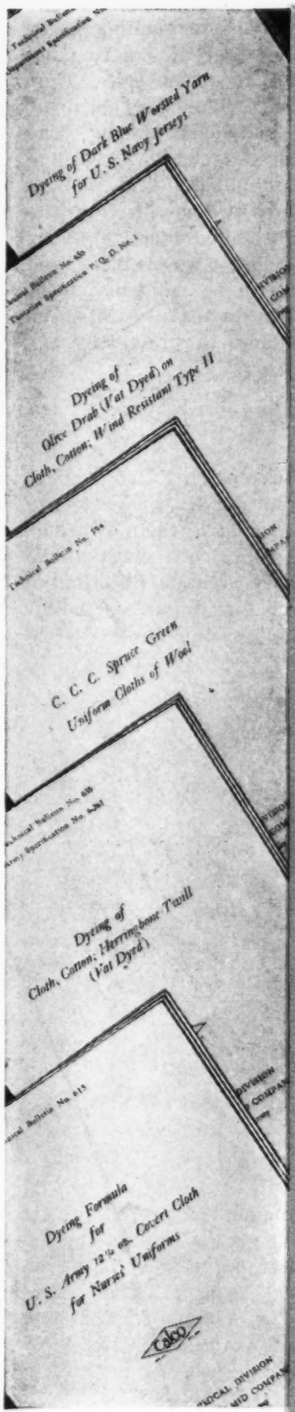
Paints recommended should be flat —not glossy, because the flat paint offers lower visibility. The report warns, however, that due to the tendency of dark paint to absorb heat, plate glass "must never be painted with dark colors because the glass may crack under temperature changes."

In order to counteract the depressing effect that darkened windows have upon room occupants, the report suggested that a white undercoat be applied to the outside of the glass before the black-out paint.

◆

New Magnetic Relay Contactor

General Electric Company, Schenectady, N. Y., has announced a new magnetic relay contactor for use either as a relaying unit or motor starter. Designated as CR2790, it is said to be especially suitable for the control of pilot circuits, as a fractional-horsepower motor starter, or for use in conjunction with a magnetic switch controlling larger motors, heating or lighting circuits or signals systems. Available in three contact arrangements, single-pole normally open, double-pole, normally open, and double-pole, double-throw. The unit is rated at 10 amperes when used as a relay; when used as a motor starter, the normally open tips are rated ½ hp., 110 volts ac. and 1 hp., 220 volts ac.


Dyeing of Dark Blue Worsted Yarn for U. S. Navy Jerseys
Dyeing of Olive Drab (Vat Dyed) on Cloth, Cotton; Wind Resistant Type II
C. C. C. Spruce Green Uniform Cloths of Wool
Dyeing of Cloth, Cotton; Herringbone Twill (Vat Dyed)
Dyeing Formula for U. S. Army 12½ oz. Covert Cloth for Nurses' Uniforms

CALCO Technical Bulletins

OFFER PRACTICAL HELP IN PROCESSING TEXTILES FOR WAR NEEDS

The tremendous increase in the number of textile items required for war use, and the raw material allocation system mean that many plants must adopt work which is new to them.

To give practical assistance in meeting the many problems involved in this all-important change-over is the purpose of the Calco Technical Bulletins now available or in preparation.

For instance, Calco Technical Bulletin No. 632, "Dyed Cotton Textile Items for War Use", lists many important textile items, summarizes processing methods and equipment, lists the types of dyes at present permitted or specified for various items, and lists important Government Procurement Agencies.

Other bulletins give suggestions and methods for meeting established specifications on individual items. A partial list of Calco Technical Bulletins which may be of assistance to you is given below.

Calco Technical Bulletin No. 632
"Dyed Cotton Textile Items for War Use"

Calco Technical Bulletin No. 634
"Dyeing of Type IV, Khaki (Vat Dyed) Cloth, Cotton; Uniform, Twill"

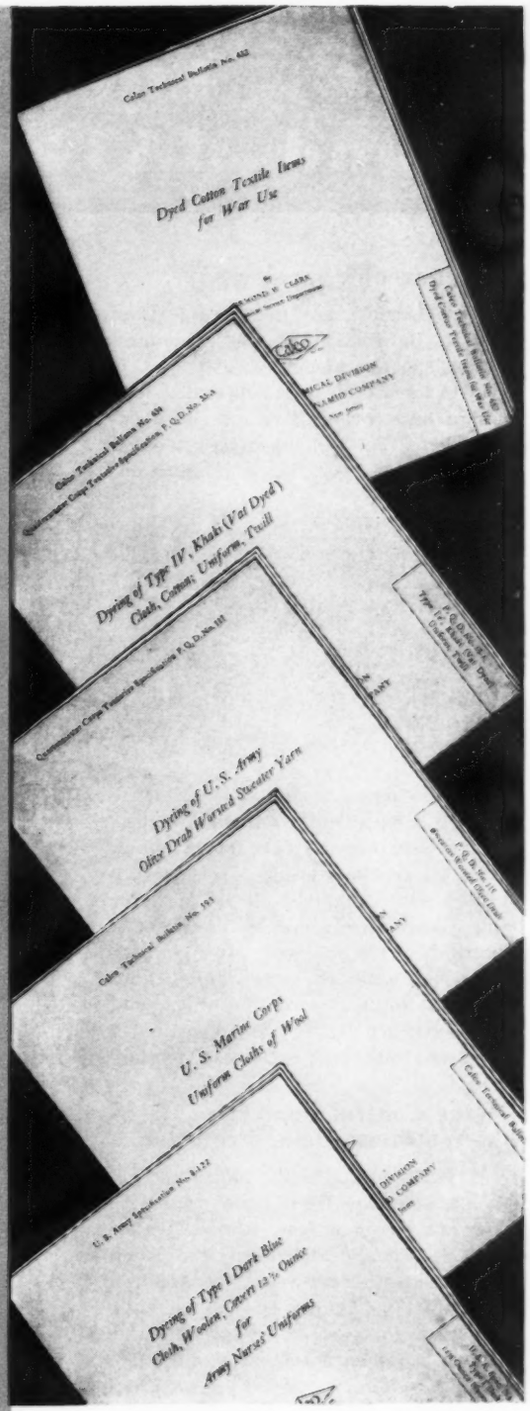
Calco Technical Bulletin No. 593
"U. S. Marine Corps Uniform Cloths of Wool"

Calco Technical Bulletin "U. S. Army Specification No. 8-122—
Dyeing of Type I Dark Blue Cloth, Woolen, Covert 12½ Ounce for Army Nurses' Uniforms"

Calco Technical Bulletin "Quartermaster Corps Tentative Specification P. Q. D. No. 111
Dyeing of U. S. Army Olive Drab Worsted Sweater Yarn"

Calco Technical Bulletin No. 638
"Dyeing of Dark Blue Worsted Yarn for U. S. Navy Jerseys"

Calco Technical Bulletin No. 636
"Dyeing of Olive Drab (Vat Dyed) on Cloth, Cotton; Wind Resistant, Type II"


Dyed Cotton Textile Items for War Use
Dyeing of Type IV, Khaki (Vat Dyed) Cloth, Cotton; Uniform, Twill
Dyeing of U. S. Army Olive Drab Worsted Sweater Yarn
U. S. Marine Corps Uniform Cloths of Wool
Dyeing of Type I Dark Blue Cloth, Woolen, Covert 12½ Ounce for Army Nurses' Uniforms

Calco Technical Bulletins are available on request to our main office. Calco's Technical Service Staff will gladly assist in solving specific problems arising from intensification of the war effort.

Calco Dyes Are Better Buys

Calco

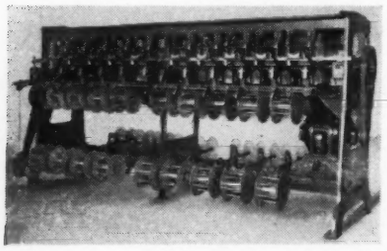
CALCO CHEMICAL DIVISION
AMERICAN CYANAMID COMPANY
Bound Brook, New Jersey

Boston • Philadelphia • Providence • New York
Charlotte • Chicago

NEW EQUIPMENT and MATERIALS

New Lazenby Spooler

F. A. Lazenby and Co., Inc., 31 East Lee St., Baltimore, Md., has announced a new spooler, Model DH-400, that is said to have been tested in mills. The design incorporates features long desired by carpet and rug mills combined with ease of operation and much in-



creased winding speed. Each spindle may be independently adjusted, including the feature of part spool winding. The package indicator is plainly visible and accessible to the operator and changes are made by means of a knurled adjusting nut. It has cast iron end samsons, steel rails, ball-bearings, oilite bronze bushings and case hardened parts. The machine is equipped with automatic stop motion.

◆

Motor Control Center; Watthour Meter Protector

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has announced a new control center with interchangeable units for group control of ac. motors up to 100 hp. Available in 76 and 90-inch heights, the centers consist of a 7-inch filler at the top for horizontal buses and cable trough, a 5-inch filler at bottom for cross cable duct, an 8-inch filler for master terminal boards and multiples of the basic 14-inch starter unit heights. Interchangeable units are trim mounted 20 inches wide, permitting two to five control elements to be placed in a single section. For operation on 3-phase, 220, 440 and 550 volt circuits, the motor starter units consist of a full voltage magnetic starter providing external manual re-set, thermal overload and low voltage protection.

A new indoor watthour meter protector has been made available for preventing damage due to lightning surge voltages. Known as Type A, the unit has a line to ground rating cut-off of 500 volts rms, a 60-cycle gap breakdown of 800 to 1200 volts rms, and a discharge capacity of 20,000 amperes crest. Circuit voltage range is from 110 to 575 volts on 3 phase circuits. The protector is enclosed in a round aluminum case filled with a non-inflammable compound.

◆

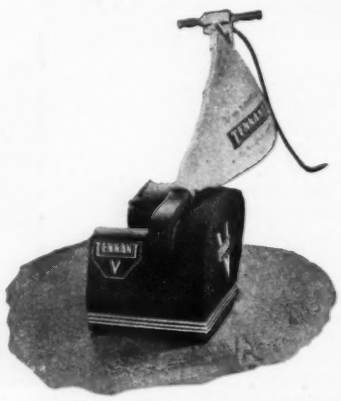
New Service for Seamless Tube Buyers

The Seamless Steel Tube Institute, Gulf Building, Pittsburgh, Pa., has announced the establishment of a new service whereby purchasers may obtain information on the availability of various grades and sizes of seamless steel tubing for new or special wartime requirements.

◆

New Floor Machine

G. H. Tennant Company, Minneapolis, Minn., has re-designed the Model C floor machine into the Model V machine, which will do all types of floor work efficiently by use of its 18-inch



and 16-inch attachments. The machine is powered by an electric motor which provides two speeds with proper direction of rotation for sanding, buffing, wax application, polishing and scrubbing. It may be used on wood, asphalt tile, linoleum, terrazzo, marble and concrete.

◆

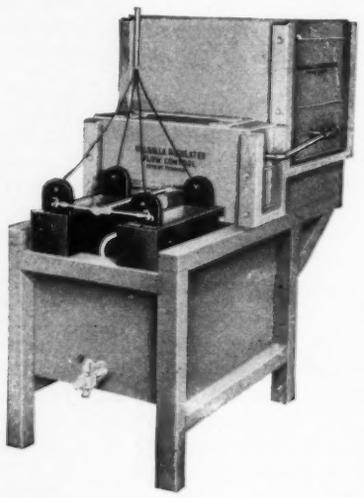
Camouflage Paints

Sherwin-Williams Company, Cleveland, Ohio, has made available camouflage paints for concealing strategic military and civilian objectives by making them blend in with the colors of the surrounding earth and foliage to prevent spotting by aerial cameras and bombers. They are made in such colors as field drab, earth brown and dark green. The new paints are designed for spreading over roofs, buildings, streets and other structures which disclose the presence of a bombing objective. They dry without gloss or reflections and permit streets to be painted out or non-existent streets to be painted in. The paints adhere to practically any type of surface.

◆

Chlorinator

Valhalla Company, 231 South LaSalle St., Chicago, Ill., makes known that plants may make their own supplies of chlorine bleach with a machine called the Valhalla Chlorinator. It is a device for producing sodium hypochlorite by passing direct current

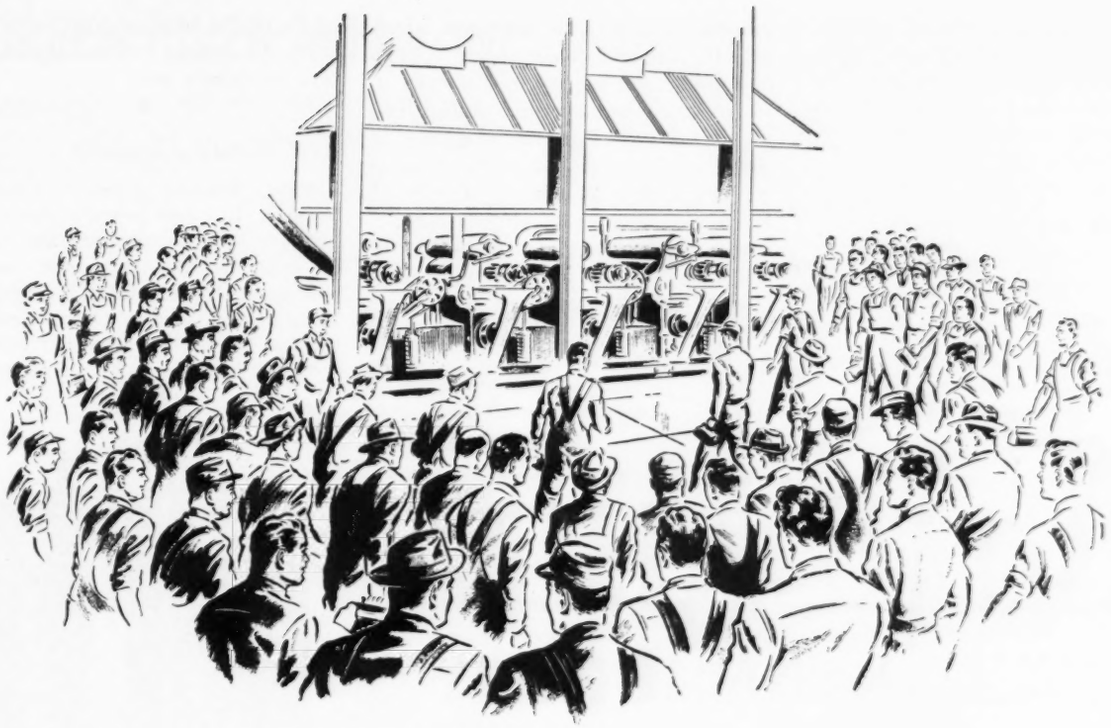


through a common salt solution. Its operation is simple. A tank at the top is filled with brine; current is set up in the special cells as the brine flows into them. The sodium hypochlorite bleach solution, in proper concentration for immediate use, accumulates in a lower vat, from which it is drawn off as desired.

◆

Substitute for Japan Wax

Glyco Products Company, Inc., 230 King St., Brooklyn, N. Y., states that Nipocer, a synthetic wax manufactured from domestic materials, is being used to replace Japan wax by some manufacturers. This is a tan colored wax with a melting point of 46 to 49 degrees C. It is said to blend with most waxes and resins and is easily emulsified with the usual emulsifying agents. According to the makers, the product is less subject to oxidation and rancidification than Japan wax.



A mechanized army of 1,000,000 workers!

Lucky America to have a great Textile Industry to call on in this Emergency!

Here is a "mechanized army" of a million workers—a solid phalanx of 7,000 plants for spinning, knitting, weaving, bleaching, dyeing, finishing . . .

Producing all the textiles required for our armed forces plus a sufficiency of textiles for the "army in over-alls" fighting the Battle of Production . . . Textiles for Victory!

Only in its mechanical equipment is the Textile Industry vulnerable . . . only through deterioration of its machinery can textile production be slowed or quality of products lowered.

Engineers and superintendents are on guard against this . . . always are they on the alert—to keep their plants in the best possible state of efficiency.

Since 1820, the Butterworth Organization has served the Textile Industry in America—pioneering, building and improving machinery for the Wet End of Textile Finishing.

Today, while Ordnance production has first call on our facilities, we are still building Textile Machines as required in America's great War Program.

H. W. BUTTERWORTH & SONS CO.
Main Office and Works, Philadelphia, Penna.
Offices in Providence, R. I. and Charlotte, N.C.
In Canada: W. J. Westaway Co., Hamilton, Ont.

***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

*Proved by Research

Butterworth

PRODUCING GUN MOUNTS FOR THE UNITED STATES ARMY

It is being used in textile preparations, lubricants of various types, protective coatings, impregnants, polishes and for purposes where a wax with the properties of Japan wax is desirable.

◆

New Scutcher and Batcher

Birch Brothers., Inc., Somerville, Mass., have introduced an addition to their line of cloth opening and folding machines. Both the standard and heavy duty ballbearing machines are now built with an extended folder designed particularly for use with squeeze rollers. The machines eliminate the use of a folder separate from the opener and require a minimum of space and erection work. After the cloth passes through the governor, it passes over a guide roll to the squeeze rollers and then up again to the folder. Machines are built in all widths.

The company has also introduced a new heavy duty two-roll rack and pinion batcher designed for heavy material, such as duck, burlap, etc. where it is desired to make a large roll. The machine is suitable for use in cotton finishing plants, felt and woolen mills, in connection with open-width processing, tenter, dryers, padders, calenders, etc.

◆

New Weather-Ometer

Atlas Electric Devices Company, Chicago, Ill., has brought out a new twin-arc Weather-Ometer that is said to duplicate the action of outdoor weathering by combining the action of June sunlight, rain, heavy dew and thermal shock. It gives greatly accelerated test results by the increase of

active light at the specimen and the co-ordination of thermal shocks produced by cold water spray. The instrument is equipped with a robot cycle meter governing the light and thermal shock periods automatically. No operator is required other than inspection of samples and re-loading of the arc units once in each 24 hours. According to the company, all standard Weather-Ometers now in use can be converted economically into the new testing unit.

◆

"Cotton Loomfixers' Manual"

McGraw-Hill Book Company, 330 West 42nd St., New York City, has published "Cotton Loomfixers' Manual," prepared by Ivar Moberg, instructor in weaving, loomfixing and designing at the Nashua Manufacturing Company, and instructor at the Lowell Textile Institute. The book, having 194 pages of text, is profusely illustrated, and carries setting and fixing instructions on all loom parts and motions. It could serve either as a textbook or for self-study in improving knowledge and skill. Price, $2.50.

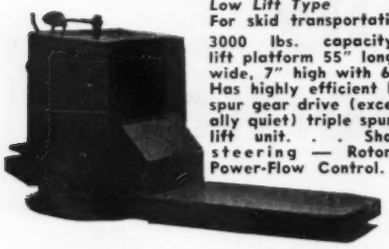
TRADE AUTOMATIC MARK

Manufacturers for Over Thirty Years

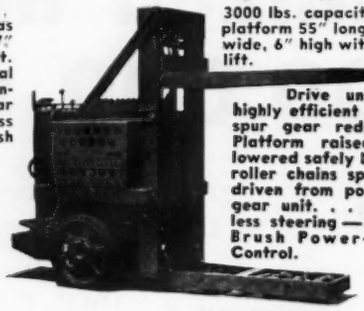
MODERN *Electric Propelled* INDUSTRIAL TRUCKS

FOR ECONOMICAL MATERIALS HANDLING IN THE TEXTILE INDUSTRY

★ LIFTING
Low Lift Type
For skid transportation
3000 lbs. capacity—has lift platform 55" long, 27" wide, 7" high with 6" lift. Has highly efficient helical spur gear drive (exceptionally quiet) triple spur gear lift unit. . . Shockless steering — Rotor-Brush Power-Flow Control.

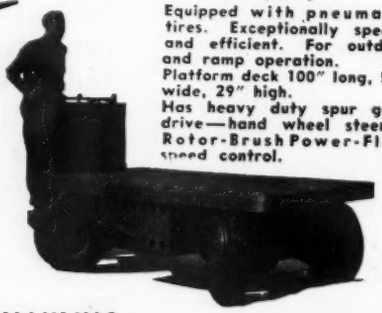


★ TIERING
High Lift Type
3000 lbs. capacity has platform 55" long, 26" wide, 6" high with 60" lift.
Drive unit has highly efficient helical spur gear reduction. Platform raised and lowered safely by two roller chains sprocket driven from powerful gear unit. . . Shockless steering — Rotor-Brush Power-Flow Control.



★ STACKING
Use your *full* vertical storage space—stack unit loads on pallets—eliminate re-handling—simplify inventory—speed up production—use the "AUTOMATIC" Fork Truck System.
Capacities 1000 and 2000 lbs.
Telescopic Lift 120"
Uprights collapse to 83"
Truck is exceptionally compact, will maneuver easily in congested areas also lightweight for min. capacity elevators.
Get Full Details

★ LOADING
Platform Type
4000 lb. capacity.
Equipped with pneumatic tires. Exceptionally speedy and efficient. For outdoor and ramp operation.
Platform deck 100" long, 51" wide, 29" high.
Has heavy duty spur gear drive—hand wheel steer—Rotor-Brush Power-Flow speed control.



★ HAULING
For every hauling purpose. Tractor is exceptionally compact and powerful. Has 1000 lbs. Max. hauling D. B. P. Two wheel steer. Quiet drive. Rotor-Brush Power-Flow control.

REQUEST DETAILS AND LITERATURE

AUTOMATIC TRANSPORTATION CO.
67 W. 87th St. Div. of the Yale & Towne Mfg. Co CHICAGO, ILL.

AT GREEN RIVER MILLS, TOO . . .

"Maple proves best for hard wear"

. . . And Geo. W. Boys, Vice President of the Green River Mills, Inc., Tuxedo, N. C., goes on to say—"We find Northern Hard Maple is best for hard wear, easily maintained and kept in good condition."

On all counts, Maple Flooring is modern. Its warm, dry sanitation protects workers. Its tough "non-dusting" surface protects machinery. Its smoothness speeds up traffic, aids cleaning. It lowers service costs—doesn't catch lint; brushing alone cleans it—and it wears years longer.

Note, too, the light reflection in the photograph above. *Better light,* with smooth Maple, speeds production, prevents mistakes, and helps reduce accident hazard.

That's why modern mills use Northern Hard Maple for new floors and reflooring—and specify **MFMA** (trademarked, guaranteed *all* Northern Hard Maple). Ask your architect or engineer.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1794 McCormick Building, Chicago, Illinois

Write for folder on heavy-duty finishes for old or new Maple floors, which further reduce cleaning costs. See Sweet's, Sec. 11/82.

Floor *with* MFMA Maple
REG. U. S. PAT. OFF.
(NORTHERN HARD)

Where Do You WANT THE AIR?

Adjustable outlets make Parks Traveling Cleaners

- **MORE FLEXIBLE**
- **MORE EFFICIENT**

Volume of air may be regulated, where the air is aimed may be adjusted. Both air streams may be "spotted" in — or directly down — or slightly out; each side independently of the other.

Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.

PERSONAL NOTES
About Men You Know

GEORGE E. GLENN, JR., for the past several years superintendent of the Pepperell Mfg. Company, Lindale, Ga., has become president and general

Mr. Glenn

manager of Exposition Cotton Mills Company, Atlanta, Ga. Mr. Glenn succeeded J. A. MILLER, who retired on March 1.

G. H. (JACK) SMITH, for the past several years assistant superintendent at Pepperell Mfg. Company, Lindale, Ga., has succeeded Mr. Glenn as superintendent. ROBERT J. MCCAMY, superintendent of dyeing, has been made assistant superintendent of the mill succeeding Mr. Smith. Mr. Smith is a graduate of Alabama Polytechnic Institute, Auburn, Ala., and Mr. McCamy is a graduate of the Georgia School of Technology.

WILLIAM H. RUFFIN, secretary and treasurer of the Erwin Cotton Mills Company, Durham, N. C., has been elected vice-president and treasurer, and CARL R. HARRIS, formerly assistant secretary and treasurer, has been elected vice-president and assistant treasurer of the company. E. G. MCIVER, for many years a member of the board of directors, was elected secretary and N. A. GREGORY was elected assistant secretary.

JOHN P. HARRISON has resigned as superintendent of Muscogee Mfg. Co., Columbus, Ga., to become assistant general superintendent of Georgia-Kincaid Mills, Griffin, Ga., where JOHN A. SWANSON is general superintendent. No successor to Mr. Harrison at Muscogee, where ALLEN JONES is general superintendent, has been named.

J. A. COOPER, for many years secretary of the Henderson (N. C.) Cotton Mills, has been elected president of the organization, succeeding his brother, S. P. COOPER, who was relieved of the heavy duties because of ill health. S. P. COOPER remains in an advisory capacity and as a member of the board of directors. M. Y. COOPER was elected secretary to fill the vacancy created by the promotion of J. A. COOPER.

J. F. PLEXICO, who has been overseer of carding at the Shelbyville, Tenn., plant of U. S. Rubber Company, has been transferred with a promotion to the company's plant at Des Moines, Iowa.

PETER HAINES has become superintendent of the Madison (Me.) Woolen Company, succeeding JAMES COOK, who as noted in the February issue, is now associated with the new woolen mill at Union, S. C.

PAUL F. FABIAN of Putnam, Conn., has returned, after several years absence, as superintendent of the Uncas Finishing Company, Mechanicsville, Conn.

W. R. HUGHES, W. M. WEAVER and R. L. SMITH have been promoted to overseers of the first, second and third shifts cotton weaving at the Drayton (S. C.) Mills.

J. C. MEEHAN, formerly with the Texas Textile Mills, McKinney, Tex., has become overseer of weaving at the Stonewall (Miss.) Cotton Mills, Inc.

C. B. WILLIAMS of Narrows, Va., has accepted a position as superintendent of Manetta Mills, Monroe, N. C.

RICHARD W. FREEMAN, New England sales manager of Pepperell Manufacturing Company, has joined the Office of Price Administration as textile representative for New England.

ERNEST B. G. PIGGOTT, vice-president and general manager of Greenville (N. H.) Mills, Inc., has resigned to become treasurer and general manager of Peterboro Mills, Inc.

W. A. L. SIBLEY has resigned as vice-president and general manager of Ware Shoals (S. C.) Manufacturing Company, to accept the position of vice-president and treasurer of the Monarch chain of mills located at Union, S. C.

FRANK E. VANTINE has resigned as treasurer of Republic Cotton Mills, Great Falls, S. C., and will make his headquarters in Columbia, S. C.

J.O. THOMAS, president of the Southern Textile Association and associated with Marshall Field & Company, Spray, N. C., and ROBERT T. STUTTS, vice-president of the Southern Textile Association and superintendent of the Woodside Cotton Mills Company, Simpsonville, S. C., have been called to active duty with the army. Both held commissions in the Officers Reserve Corps.

Obituary

W. GEORGE THOMAS, of the firm Cosby & Thomas, Charlotte, N. C., passed away suddenly February 5.

JOHN S. TURNER, 76, president and director of the Philadelphia (Pa.) Felt Company, passed away January 17. He had been associated with the company since 1916 and was president for the past 10 years.

LELAND S. BUTLER, 44, retired textile chemist, passed away the latter part of January at Greenville, S. C. He had been affiliated with Southern Franklin Process Company.

AUGUST EGERER of the firm S. Augstein & Company, New York, passed away during January at the age of 62.

ERNEST BARNES, superintendent of Steere Mill, Wanskuck Company, Providence, R. I., passed away at the age of 64.

J. L. DUPLAN, who founded and was first president of the Duplan Corporation, passed away December 26 in Paris at the age of 80.

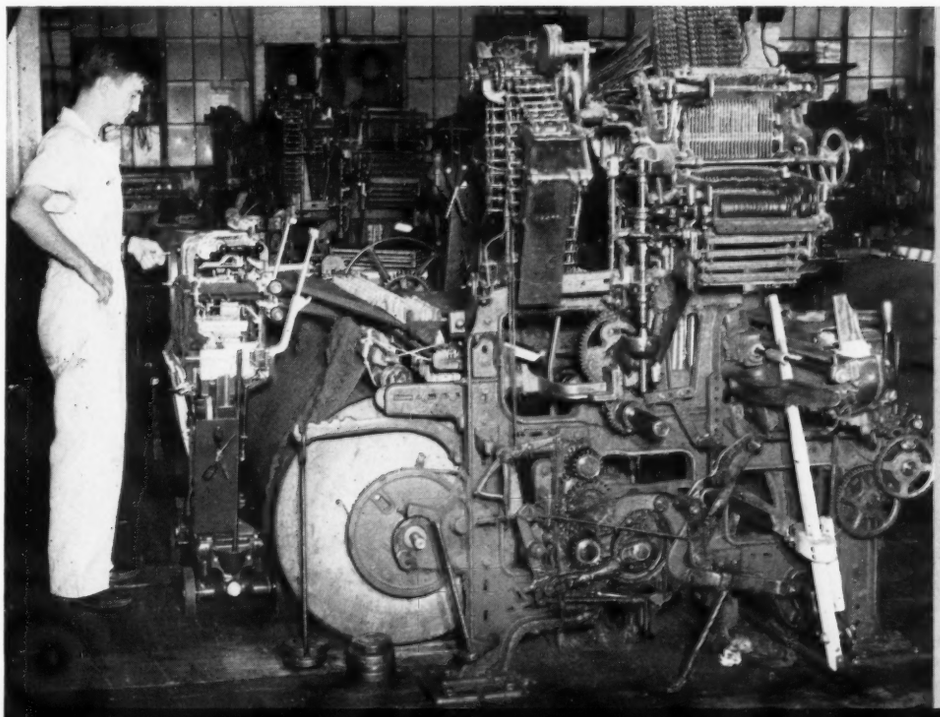
HENRY FEUERSTEIN, president, Malden (Mass.) Knitting Mills, passed away recently at the age of 79.

HENRY HAMMETT ILER, 55, chief engineer for the Union Bleachery and past president of the Southern Textile Association, passed away at a hospital in Greenville, S. C., February 4.

AUSTIN H. CARR, president of Durham (N. C.) Hosiery Mills, passed away suddenly in New York, February 4, as the result of a heart attack. He was 48 years old. He had been an active member of the National Association of Hosiery Manufacturers.

JOHN T. JOHNSON, 60, treasurer of American Enka Corporation, Asheville, N. C., passed away January 31 following an attack of pneumonia.

M. R. ABBOTT, associated with Callaway Mills for mare than 40 years, and manager of the sales office in Boston, passed away the early part of February.



BARBER-COLMAN

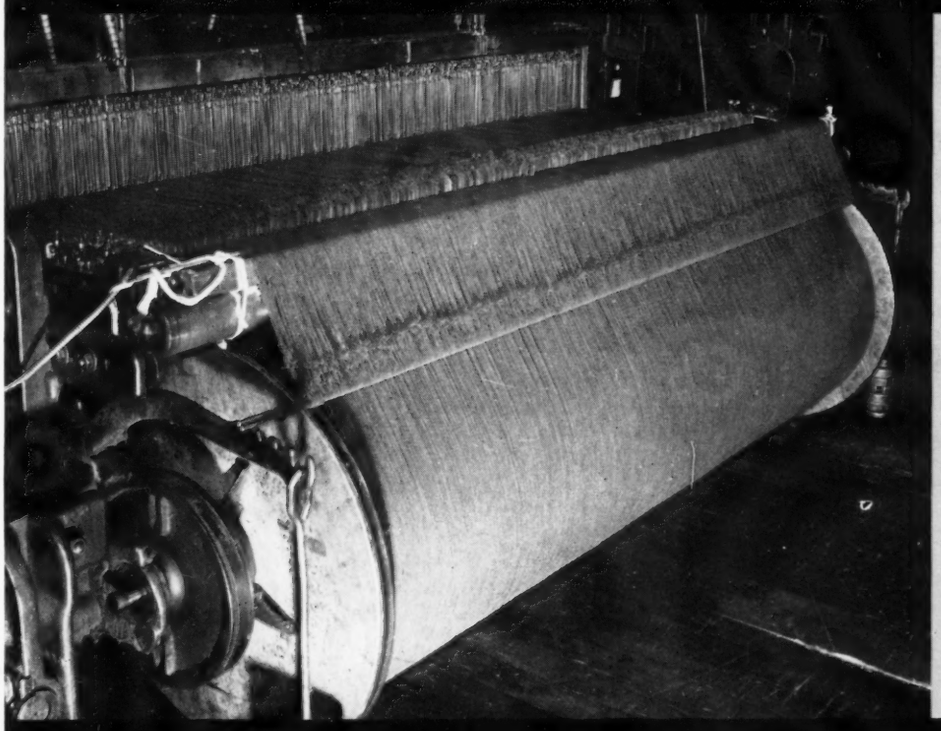
Portable

WARP TYING MACHINE

MODEL "LS"

TYING-IN WOOLEN WARPS... AT THE LOOM!

LOW COST WARP REPLENISHMENT - HIGHEST QUALITY RESULTS



Above, operator using Model "LS" machine equipped with new tying mechanism for woolen yarns. Left, woolen warp completely tied-in at the loom. These pictures were made in a prominent mill which manufactures automobile upholstery fabrics and blankets.

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS, U. S. A.

FRAMINGHAM, MASS., U. S. A. • GREENVILLE, S. C., U. S. A. • MANCHESTER, ENGLAND • MUNICH, GERMANY

Away at a bound at the throw of the switch . . . that's the proved record of Dayco Tempered Roll Coverings. Shutdown grief thus becomes a thing of the past...ends down worries disappear... "down" time is sliced to a minimum.

Remember, these all-season Daycos pay no attention to temperature extremes. For they're engineered and built to go right on without flattening, distortion or grooving. And the result, as proved in the nation's leading textile mills, is greater production of high standard, uniform yarn for a longer time at less cost-per-month of use.

PLEASE HELP US COOPERATE FOR VICTORY

Today, everybody's business is Victory, and for the duration our production facilities of Roll Coverings and Loom Supplies is dedicated to that end. Therefore, we ask that you be patient regarding our ability to fulfill your orders promptly.

THE DAYTON RUBBER MFG. CO.
TEXTILE PRODUCTS DIVISION, Dayton, Ohio
The Originators and Pioneers of Dayco Tempered Roll Coverings

GREENVILLE SALES OFFICE
Woodside Building . . . Greenville, S. C.

EXPORT DIVISION
DAYTON RUBBER EXPORT CORP.
38 Pearl Street, New York, N. Y., U. S. A.

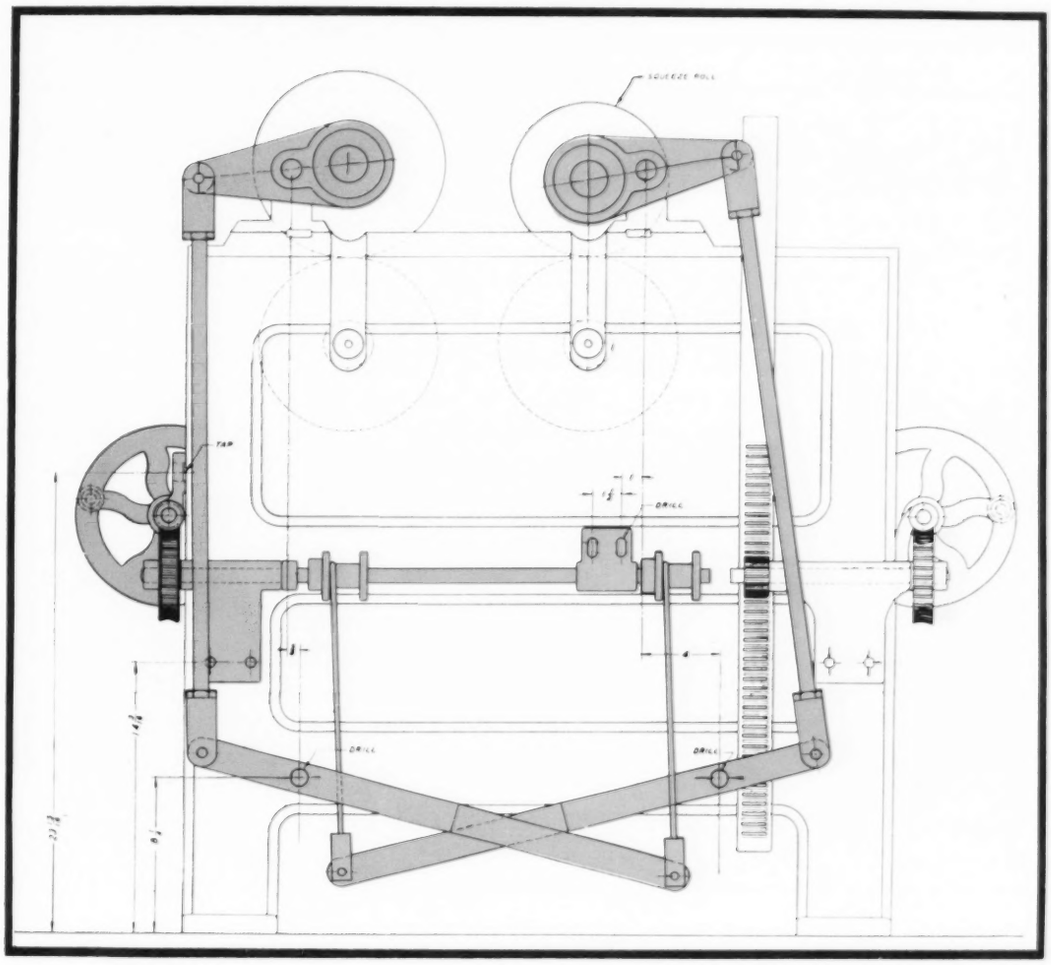
HERE'S WHY—
DAYCO TEMPERED ROLL COVERINGS ARE THE No. 1 CHOICE OF AMERICA'S TOP-FLIGHT TEXTILE MILLS

1. Improved drafting.
2. No grooving—less ends down.
3. Unaffected by temperature changes.
4. Lower net roll costs.
5. Long service life.
6. Easy to apply.
7. Proper cushioning.
8. Not affected by hard ends.
9. Static free.
10. Oil resisting.
11. One piece tubular construction.
12. Produce more uniform yarn.

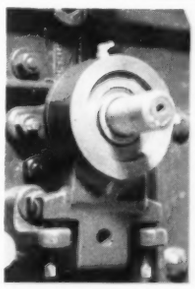
Dayton
***Thorobred* TEXTILE PRODUCTS**
Dayco TEMPERED ROLL COVERINGS—LOOM SUPPLIES
MADE BY THE WORLD'S LARGEST MANUFACTURER OF V-BELTS

Copyright 1942, The Dayton Rubber Mfg. Co.

Modernize Your Size-Box



A NEW Lifting Device



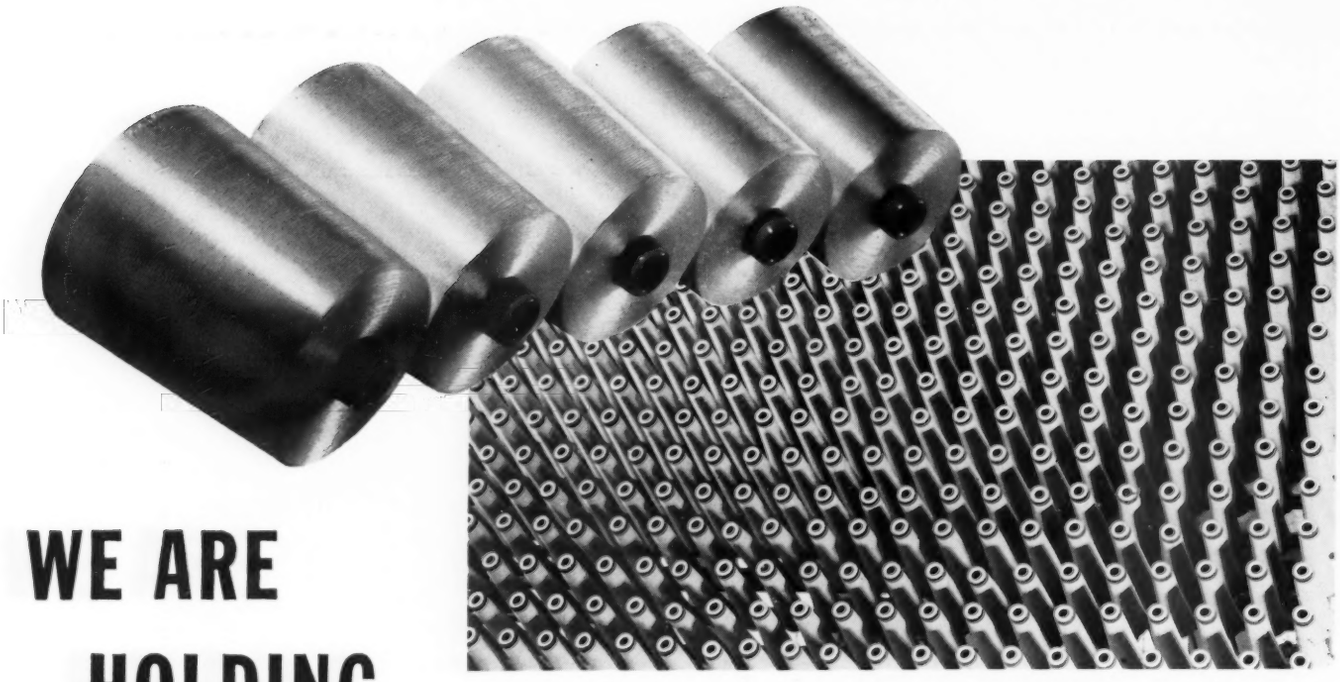
This adjustable ball bearing hanger for size vats is a heavy duty, self-aligning bearing to support copper size rolls. Accurate roll alignment is maintained.

This ball bearing squeeze roll lifting device (illustrated in red) for size vats on slashers is designed to enable a single operator to raise and lower both heavy squeeze rolls simultaneously. This system of levers and connecting rods raises and lowers the squeeze rolls which are held firmly in position over the exact center of the copper size roll. Perfect alignment of the squeeze and size rolls prevents undue wear and tear on the blankets.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA



WE ARE HOLDING THE INITIATIVE

Ten years ago SONOCO started an expansion of their production facilities—with the idea that ample and more efficient equipment would help to lower cost . . . and, if the demand increased they would be prepared—

The demand has increased—doubled and re-doubled far beyond original expectations, but—

. . . We continue to hold the initiative in our battle for production.

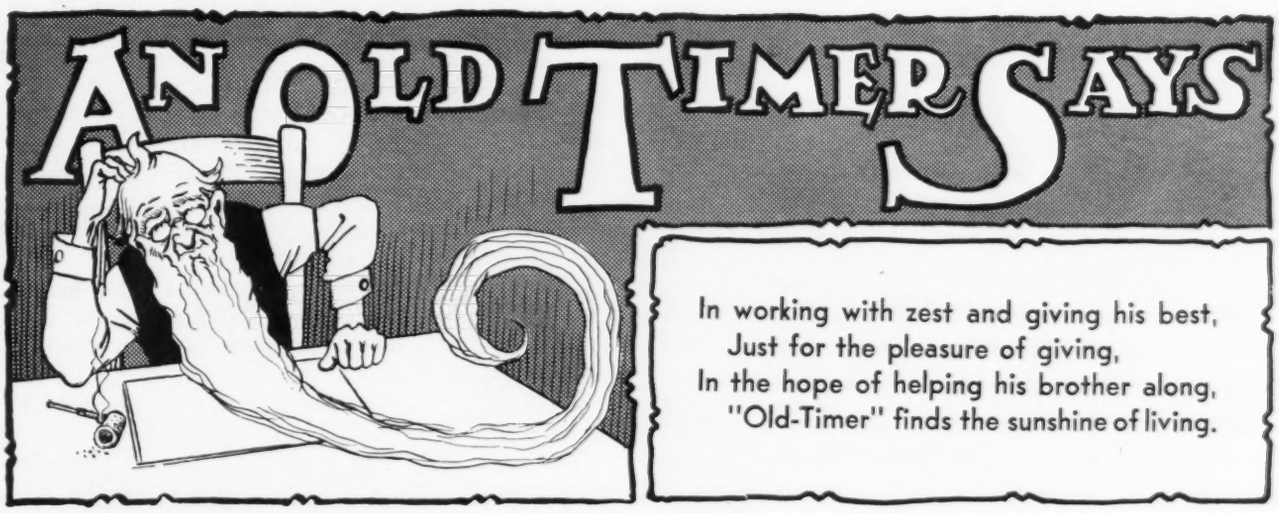
Buy for normal needs and SONOCO will be able to meet your demands.

SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

Are YOU Helping Anyone like This?

YESTERDAY I picked up a sargeant of infantry and gave him a ride to the next town where he had lived practically all of his life. He was a rather likable chap and I engaged him in conversation probably at more length and detail than you do with the average man you pick up who is thumbing a ride.

When he explained that shortly before induction into the Army he had purchased a couple of lots near where he was living with his wife at her parents' home and had expected to build a home, OLD-TIMER got interested sure enough. This man was employed in a textile finishing plant before induction and his wife is the nurse in charge of first-aid at the same plant. They were saving their money in anticipation of building a home and as soon as they could get enough paid on the home they intended to build another house for rent.

As OLD-TIMER is and always has been very much interested in seeing and helping young people get started toward building up an income, and hearing this young man tell of his and his wife's efforts to get started, he led the soldier along to find out about his work at the finishing plant and to find out if he had good chances to become an overseer. Because men of his type are the men that management is looking for and cannot find enough of to train for promotion.

Learning that he was still a simple operative after six years with the firm, OLD-TIMER suspected something was wrong somewhere.

"Yes," the sargeant explained, "I just haven't got the education. I am very much interested in chemistry and know considerable about the chemistry which is applicable to my work, but I can only carry out instructions which I receive from my foreman. When an opening occurs they always hire one of those young fellows just out of school who has been studying chemistry."

Gosh, fellows, can you realize what a sad story that is? A young man, not 30 years old, of good character, good habits, ambitious to get along, a young man who is apparently very much above the average, with a wife as ambitious as he is—but with a millstone around his neck holding him down to the wages of an operative.

No one, it seems, had ever taken enough interest in him to explain that it is a comparatively easy matter for him to get the necessary education.

He has had enough graded school education to enable him to read, write, and enough mathematics to make ordinary calculations. From what I could learn he has the equivalent of probably sixth or eighth grade education. His wife is a high school graduate and had one and a half years in college. She could, as I explained to him, carry him right on through the other grades if he would secure the books and devote a couple of hours each night to study. Then he could take up correspondence courses and at the same time employ some local teacher to help him with the correspondence courses.

No need to explain further, because you readers see what OLD-TIMER is trying to explain: that you as overseer or superintendent very likely have young men in your employ who are just as deserving as the soldier I talked to, but they too have never had anyone explain to them how comparatively easy it is for the young man of today to obtain the necessary education to prepare him for promotion.

Recently there was an OLD-TIMER article making a plea to all overseers and superintendents and managers to look around and inquire among their operatives for young men comparable to the soldier we talked to, and by giving them the necessary advice and encouragement, develop a number of young men who in a reasonable time would be good prospects for promotion.

OLD-TIMER hopes that relating this little, true life story of the sargeant will encourage you to carry out the thought presented in the OLD-TIMER article which appeared in the August 1941 issue of COTTON. We do not know of anything that will give a man more pleasure than to see a young man you have taken an interest in take on new life and finally get in line of promotion. Talk about doing a good deed—this in our opinion is one of the greatest deeds you can do.

THE COLLEGES can put detailed information into a young man's brain, but unless that young man has sufficient inspiration, imagination and initiative to apply that detailed knowledge to practical problems, he does not progress very fast. I wonder if the time will ever come when a textile college, for example, will employ practical men to collaborate with their instructors. Yes, I know many textile college instructors have been practical men, but if they have devoted several years to instruction in the college they are somewhat out of touch with present-day conditions and the question above was prompted by the thought that textile graduates do not have much chance to come in contact with overseers and superintendents. It seems to us that if textile students knew that there would be available once per month a practical man at whom they could fire questions in an entirely informal way it would be of great value to them. During their instruction students do have many questions come to mind which they do not feel at liberty to ask their instructors, whose time is usually laid out in advance. When such ideas come to the students, if they would make notes of them and then could have the opportunity of informal discussion with an overseer or superintendent from a well-managed mill, it probably would be of great value to the students.

WE RECENTLY read an article by a minister which gave a rather comical description of the difference between heaven and hell and it appeared to us that his story described excellently the thought of co-operation which all of us know is an important quality all overseers and superintendents should have. The story went something like this:

One scene showed a large banquet table loaded with the most appetizing foods and all of the men seated at the table had a long-handled spoon strapped to the inside of their arms so they could pick up the food but could not bend the elbow to get the food to the mouth. *That was Hell.*

The next scene was a similar banquet table also loaded with the most appetizing foods and the men at this table were also equipped with the long handled spoons strapped to the inside of their arms. But each man was feeding the man next to him. That was Heaven.

Sure it was, but OLD-TIMER claims it was also a darn good illustration of co-operation.

An Example of Mill Employee Patriotism

GREGG DYEING COMPANY

DIVISION OF GRANITEVILLE COMPANY

GRANITEVILLE
SOUTH CAROLINA

January 28, 1942

Mr. Henry Morgenthau, Jr.
United States Treasury Dept.
Washington, D. C.

Dear Sir:

Enclosed please find check for fifteen hundred fifty seven dollars and thirty-eight cents ($1557.38) from the employees of the Gregg Division of Graniteville Company, Graniteville, South Carolina.

This check represents a purely voluntary contribution of a days pay by a large majority of the employees to the defense effort of our country.

The idea was sponsored entirely by us, the employees, and it is our desire that the money be used in that part of the defense program in which, in your opinion, it will be of greatest value.

Very truly yours,

The Employees of Gregg Division
of Graniteville Company

By Mrs. Gladys O. Britt
Mrs. Gladys O. Britt, Treas.

GRANITEVILLE, S. C. January 28, 1942 No. 1

GRANITEVILLE DEPOSITORY

67-720

PAY TO THE ORDER OF United States Treasury Department $ 1557.38

Fifteen Hundred Fifty Seven and 38/100 - - - - - - - - - - DOLLARS

The Employees of Gregg Division
of Graniteville Company

By Mrs. Gladys O. Britt

OLD-TIMER is proud to present, in his department in COTTON, the accompanying demonstration of the patriotism of textile mill employees. The letter to the Secretary of the Treasury is self-explanatory, but it is to be emphasized that the idea was conceived voluntarily by the employees, and carried out voluntarily and independently by them.

In acknowledging the remittance, the Treasury said: "This patriotic and generous action on the part of the participating employees of the Gregg Dyeing Company in contributing a day's work to the Government is not merely a financial contribution to the war effort but is a symbol of the real American spirit of individual interest, effort and sacrifice, and is a typical example of the attitude of a united and loyal citizenry.

"The proceeds of this donation will be deposited in the account, 'Donations to the United States for National Defense' and become a part of the general fund of the Treasury from which all expenditures of the Government, including those for National Defense, are made."

This is the sort of spirit that made America great and is what will "spark" our efforts, which will finally be victorious, in smashing those who dare to challenge freedom.

OLD-TIMER

HERE ARE THE COTS FOR

EXTRA-HEAVY DUTY

YOU CAN COUNT ON Armstrong's Accotex Cots to show exceptional wearing qualities . . . even where operating conditions are unusually severe. For this reason, these improved synthetic rubber roll coverings are recommended particularly for heavy-duty jobs—for example, on back line long-draft roving frame rolls and on rolls spinning coarse yarns. Because of their high moisture-resistance, these long-wearing cots are also ideal for use on equipment of the down-stroke wet twisting type.

Accotex Cots are ready-glued for quick assembly, are highly resilient, and are not affected by textile solvents. Available in all the sizes your mill may require, these cots can be economically rebuffed several times for extended service.

Armstrong has been manufacturing quality roll coverings for more than twenty years . . . including seven years of research and development in the compounding of synthetic rubber roll coverings for textile use. So when you buy from Armstrong, you buy from an organization that understands your problems . . . and can help you solve them with unbiased recommendations on roll coverings.

Ask your Armstrong representative to tell you about Accotex Cots. Or write direct to Armstrong Cork Company, Textile Products Section, 923 Arch Street, Lancaster, Pennsylvania.

SEVEN BIG ADVANTAGES

1. UNIFORMITY—Homogeneous composition assures uniform wear and equal life of all Accotex Cots.
2. SEAMLESS—No troublesome seams to open and shorten life.
3. RESILIENCE—Nonthermoplastic and highly resistant to flattening.
4. DURABILITY—Long life even under severe operating conditions.
5. GOOD COEFFICIENT OF FRICTION—Better drafting, less eyebrowing than with other synthetic cots.
6. READY-GLUED—Inner surface coated with water-soluble glue to enable quicker, cheaper assembly.
7. OIL-RESISTANCE—Unaffected by oil, water, dyes, or textile solvents.

ARMSTRONG'S ACCOTEX COTS

CORK COTS • ACCOTEX APRONS

CLINTON

STARCHES

FOR ALL TEXTILE PURPOSES

Quality - Uniformity - Service

CLINTON COMPANY

CLINTON, IOWA

BETTER SIZE PENETRATION • HIGHER SLASHER PRODUCTION • LOWER SIZE COST • LOWER STEAM COST • LESS CYLINDER STICKING • IMPROVED WEAVING

with the

NORCROSS Dressing Roll

PRESSURE REGULATOR

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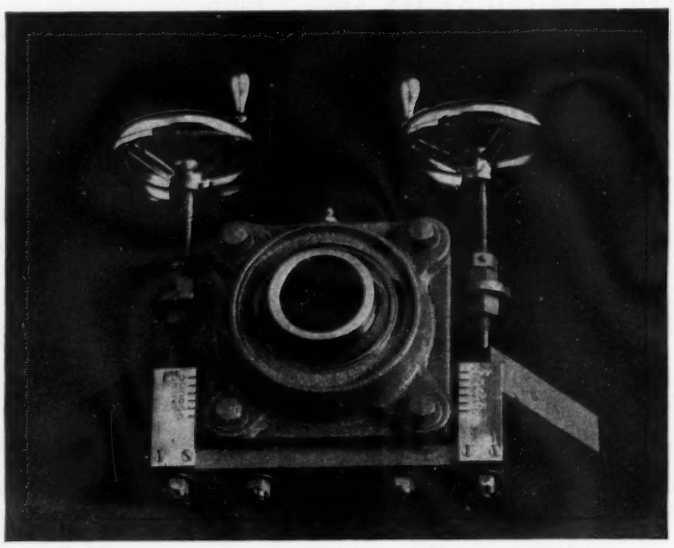

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HOW OTHER MEN MANAGE

Spinning Room Belts

EDITOR COTTON:

On page 110 of the November 1941 issue your "CONTRIBUTOR NO. 7269" asked for suggestions on the best methods of cleaning and dressing spinning room belts.

This is certainly a wide subject. The first thing it brings to my mind is a story of Sherlock Holmes and Dr. Watson wherein Dr. Watson asked Mr. Holmes to examine a watch and tell him the character and habits of the individual who had been carrying it. It was a key-wind watch and Mr. Holmes immediately said, after looking at the scratches around the key hole of the watch, that either the man was highly nervous or an habitual drunkard and wound his watch at night.

So my first suggestion to this concern which has oily belts would be to remove the cause by putting on anti-friction bearings, but with the Defense Program on they would be pretty hard to obtain. The next thing I would suggest is to put on grease cups. This will reduce the amount of oil getting on the belt.

Of course, this is for a future set-up. To help the man out of the ditch he is already in, I suggest that the belts be taken off and immersed or soaked in gasoline. More than likely these are double belts and should be soaked anywhere from 12 to 18 hours—not longer; then they should be allowed to dry—hung up to dry, if possible, where they can get a lot of fresh air. The belts will then be dry, as the gasoline will take out the tanner's oil as well as the mineral oil, and some of the tanner's oil should be applied to put them back in condition so they will not crack. I would suggest neatsfoot oil, which is a tanner's oil, be applied to the belts before putting them back on the pulleys, and that a little of this oil be applied to the belts about once a week. If you fill the pores of the leather with neatsfoot oil the bearing oil or the mineral oil from the bearings will have a hard time getting in.

I would suggest before the belts are put back on that they be inspected to see that they are in one piece, as generally belts like these have several buckles in them. Also, I suggest to the user of the leather belt that he look after the shifter and see that the belt is on the tight pulley when the machine is in operation. There is a lot of lost production on account of belts not covering the pulley face.

Another suggestion is that this mill get an automobile tire, about a 6 or 7-inch tire,* and cut a section off of it about 8 inches long. Fit the inside of this section to a block of wood and nail it on and then put a handle on the block. If the spinner would make one of these and have the section man hold it up to the pulling side of the belt twice a day, they would increase the turns and get added production.

CONTRIBUTOR NO. 7278

*Written before tire rationing started.

WE INVITE our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing.

◆

Split Laps

EDITOR COTTON:

I was greatly interested in the "Carding-Spinning discussion by Alabama Operating Executives", reported on page 65 of the January 1942 issue of COTTON.

In a discussion of the causes of split laps at the card, the following is contained in the report: "A representative from Samoset Cotton Mills has found that it is helpful to have the beater on the finisher section operating about 100 turns per minute slower than the blade beater, and to keep most of the cotton on the top screen instead of distributing it evenly on the screens."

The sparker to this letter is my desire to compliment the representative from Samoset Cotton Mills.

The tension on the lap or a change of relative humidity is not the cause of split laps, but instead it is in having the cotton distributed evenly on the screens. The writer never had a split lap for the past 40 years, and let me add that where you find split laps in a card room the carder in charge should be ashamed to call himself a carder.

To cure an evil you must find the cause and that is the question in this case. Look through the glass on the side of the beater bonnet and watch the cotton as it is drawn to both screens by the air currents. If the reader is a practical man, he knows that the currents at this point must be very strong to draw the cotton from the revolving beater. Again, he must admit that the cotton drawn with such a force on the screen creates a foundation on the sheet next to the surface of the screen, but in the center of the cages you have loose cotton pressed together.

It should be clear to the reader that if the sheets are of the same weight (and considering the loose stock in the center) one has as much strength as the other to hold together and split at the card. Again, take into consideration that the cotton drawn to the top screen must have more air current to offset its own weight.

Therefore, you must arrange your draft so that a larger amount of stock will be drawn to the top cake, and of course the top sheet being stronger than the under sheet, the under sheet is too weak to break away from the top sheet, and here you have the cure of split laps.

WASH (R. I.)

Weave Room Seconds

EDITOR COTTON:

Again and again the question is asked, "What causes seconds and how can they be remedied?" And now it has been asked by "CONTRIBUTOR NO. 7249 on page 95 of the August 1941 issue of COTTON. If any of us fellows could really answer his question and actually place in force the remedies, we could certainly go a long way toward keeping our plants far out of the red and over on the black side of the ledger. The truth is we will always have some off-qualities but it is our responsibility to keep trying to eliminate them. If we will exert enough energy in the right direction, off-qualities will drop to a very low minimum, whereas on the other hand if we fail to use this energy then we can expect nothing but a high percentage of off-quality goods.

In making a study of off-qualities, I would class them in three main classes; the first class is oily and dirty cloth, the second is loom mechanical defects, and the third is preparatory mill troubles. It is true that there often exists overlapping of these three classes but I believe in analyzing cloth troubles these classes are to be considered.

In a normally well run mill on the average class of goods, I think oil to be one of the outstanding reasons, if not the largest cause, of all off-qualities. Oiling is one thing in a cotton mill that is poorly done. Oftentimes the oiler is one employee who is left to run his job his own way. He is told how many times to make his rounds, what kind of oil to use, and then whenever there is a little extra work to be done he is called upon to do it, with instructions to catch up with his oiling later.

I have known of cases where the wrong oil was used for a week or more because the oiler got his oil barrels crossed up, he being a type of employee unable to tell the difference between a spindle oil and an engine oil.

Go to your scrap iron box once in a while and see how many bearings have worn out because the oil hole has become plugged up. Watch your loom oiler go down an alley of looms and see just how many oil holes he shoots at and misses. Oil that is supposed to go into a bearing and does not, goes somewhere else, and that "somewhere else" usually turns out to be either the cloth or the yarn.

Trouble from loom mechanical defects are many. Thread runs, or flats, caused by the stop motion being out of adjustment, bad let-offs, worn rocker shafts and boxes, poorly-adjusted filling change motions. All these and many more are causing seconds, shorts, and remnants every day. Some time ago, I was discussing loom fixing with a weave room overseer and he was telling me how he was taught to fix looms. I gathered from his remarks that he had been impressed by his overseer that the most important thing for a fixer to do was to keep his looms on the tight pulley. When a loom broke down, or a warp ran out, the quicker it was started, the higher the standing of the fixer in the mind of his foreman.

Of course, production is a very essential item but if we are going to make good cloth and a high percentage of firsts, then it would certainly pay all of us to instruct our fixers to use enough time to fix a loom right while they are doing it. The same thing is true in the warp change; if a fixer will take time to check over his loom and see that all adjustments are as they should be, then when the new warp is started the chances are better for a good running loom making good cloth.

When we turn to the third classification, that of preparatory mill troubles, we run into a field too wide to try to cover in a brief article. Of course, we should try to have as strong a yarn as possible and one with a fair amount of elasticity (sometimes I really think elasticity is more essential than straight strength). We all know that the weaker the warp yarn the more the warp breakage, and the more the warp breakage the more chances of trouble at the loom and in the cloth.

In warp yarn preparation, I want to stress the fact that proper care in slashing, drawing and tying-in of warps all go a long way in keeping seconds down. I know of mills that think enough of drawing and tying-in to have in a separate department and under a separate overseer. I believe if you will question one of these mills that they will not hesitate in telling you that they consider such an arrangement a money saver. Well cared for patterns will not only save in your supply bill of reeds and harnesses, but it will make you good cloth month in and month out.

All I need to say about filling yarn is that the idea that anything will go in filling is just plain "baloney". Good filling is just as necessary as good warps. Of course, one yarn might necessitate quality different from the other but the fact remains that no one should expect to make good cloth with bad filling.

Everything that has been said in discussing seconds has been more or less re-telling, over and over again, things that we already know and see every day. Is there not some definite action to take that might better our goods?

First of all, let us *know* our off-qualities; make an inspection in the cloth room something besides a cutting table. Install a system of classifying our troubles and then act when you get the needed information. Have your system so arranged that the cloth room will give an immediate report, not only to the overseer in the weave room but to the second hand, and specify the loom. If the trouble is a running defect; for instance, an open reed, bad selvage, stop motion not knocking off, or thin places, don't wait for the cloth to get back to the "show table", take the loom number and report it at once. Why let a loom continue to run making bad cloth? Stop it and stop it *quick*.

Have your inspections so handled that each second hand, or possibly each fixer, can know how his off-qualities compare with the others in the same room. Records are very inspiring and any red-blooded American will soon get tired of being the worst man.

The best remedy is not in the cloth room. Sometimes I think many of us really believe that the best way to fight bad cloth is at the grading table. Cloth that is a second is a second and all the cloth rooms

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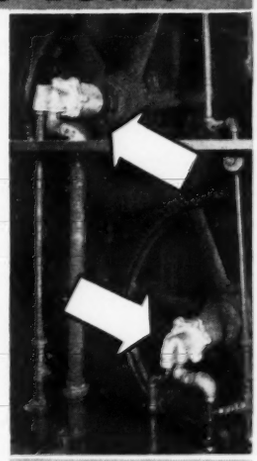

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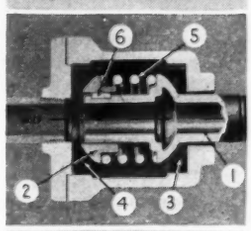

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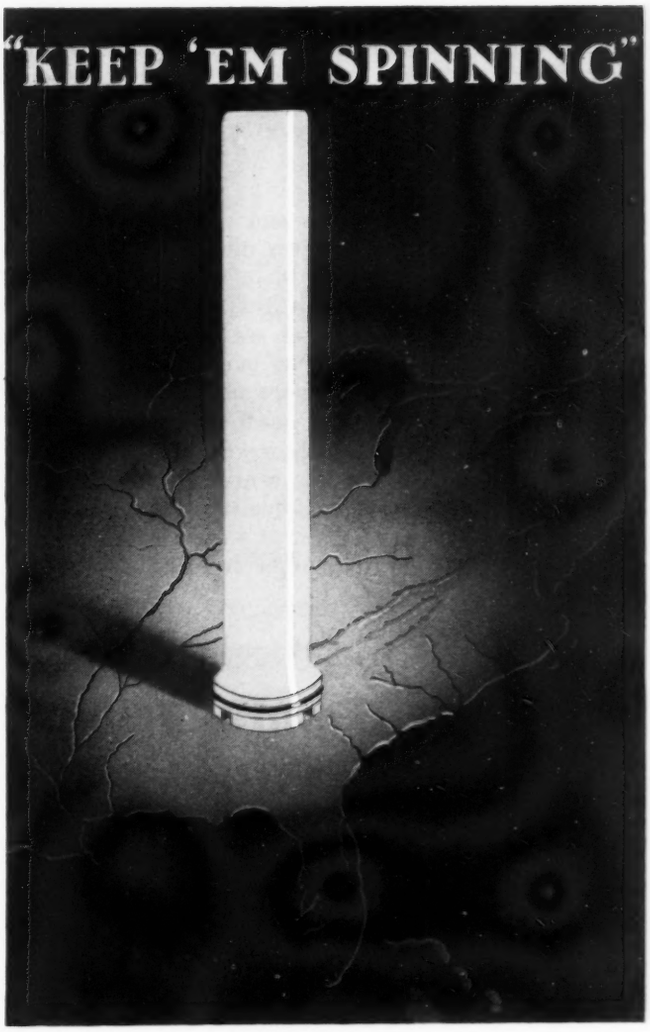

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CHARLOTTE, N. C.

in the world cannot help it. The only way to really reduce off-qualities is to start with the superintendent and go on down the line until you reach the sweepers and scrubbers and then include them also. It is a matter of training; train to be exact; accept nothing that is not all right; train to look for faults and when you find them, correct them.

I have heard overseers and superintendents complain because their employees did things wrong. The question is, "How did we train them, and how shall we train them?" If we have inefficient employees and they remain inefficient, then we can blame only ourselves. If we don't follow up our responsibility, how can we expect them to be more attentive than we are?

To my mind the whole question sums itself up to this: Be wide awake and observant, teaching all under you to be as you are. The nearer we approach perfection, the lower our off-qualities will be. Try to find your troubles, whatever or wherever they may be, and, when you find them never be satisfied until they are corrected.

CONTRIBUTOR NO. 7334

How to Handle Oily and Dirty Filling?

EDITOR COTTON:

I would like very much to see discussed in your "HOW OTHER MEN MANAGE" department the problem of disposing of oily and dirty filling that accumulates in the weave room by being dropped or knocked-out on the floor. It would be helpful if those answering this for me would advise why it is being handled their particular way.

CONTRIBUTOR NO. 7332

Mechanical and Actual Twist in Warp Yarn

EDITOR COTTON:

Answering "Contributor No. 7316", who has asked on page 93 of the January 1942 issue what should be the percentage difference in mechanical and actual twist in 14s warp yarn when we say that a particular yarn has 10 turns per inch we naturally expect to unwrap 10 turns per inch when testing that yarn on a twist counter—that is in the average 10 turns to an inch of *spun* yarn.

According to the prevalent method we calculate the necessary twist gear by dividing the *needed* twist per inch into the twist constant.

When doing so, we get a twist gear that will theoretically cause the spindles to turn 10 revolutions to every inch of front roll delivery, (for example).

We now have two things that need immediate attention: We have said (a) turns per inch of spun yarn as against (b) turns per inch of front roll delivery as found through twist gear calculation.

Here, in the writer's opinion, enters the highly controversial item of contractions. Any delivered length of material by the front roll will shrink after being twisted. This shrinkage is called contraction. The amount of contraction depends on several factors; as for instance

1. Number turns twisted
2. Size of yarn
3. Traveler pull
4. Material
5. Probably other factors

In the case of 14s warp the contraction may well be some 7 per cent, that is, every inch of front roll delivery will contract to .93-inch when twisted.

In short, every inch delivery gets its calculated quota of turns, then shrinks to .93-inch, (at the 7 per cent contraction) still showing the 10 turns for the shorter length. Or

10 turns per inch of delivery
= 10 turns per .93 inches of spun yarn
= 10.75 turns per inch of spun yarn.

To be explicit, we should take care of this to enter in our original twist gear calculation as follows:

$$\text{Twist gear} = \frac{\text{Twist Constant}}{\text{Tw./inch of spun yarn} \times \frac{(1 - \% \text{ Contraction})}{100}}$$

When the contributor asks, "What should be the difference between the mechanical and actual twist per inch?", the writer would say:

The theoretical difference between actual and mechanical twist is:

$$\text{Actual twist of spun yarn minus mechanical twist} = \text{Mech. twist} \times \frac{(\text{Contraction})}{100}$$

Therefore, in order to put in the correct yarn twist, subtract the percentile equivalent for contraction, and then divide the difference into the twist constant.

The fact that few (if any) mills use a contraction factor to establish their standard twists shows that omission of such a factor is inconsequential unless a definite improvement could be attained by actually considering it.

It is obvious that higher twist in a yarn will increase the contraction factor.

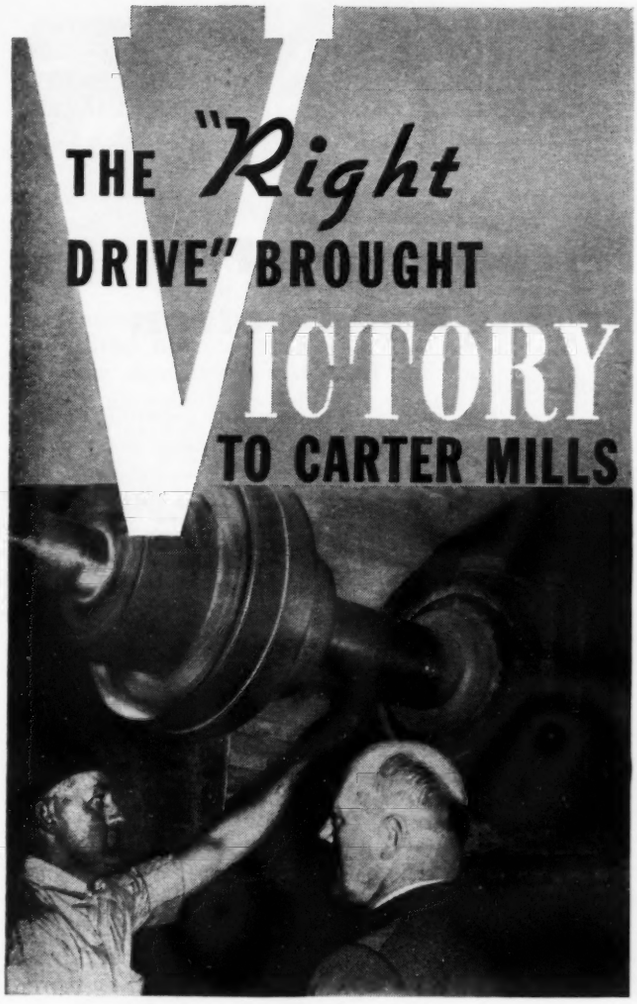
Medium twisted yarns show 3 — 5 per cent contraction, while warp yarns will contract about 7 per cent.

CONTRIBUTOR NO. 7323

EDITOR COTTON:

This subscriber would like to answer the question asked on page 119 of the December 1941 issue by "CONTRIBUTOR NO. 7289" regarding the method of calculating the contraction or take-up of yarn from the woven fabric. The example given is that of a piece of seersucker cloth 6 inches long from which the yarn removed measures 8 inches when the crimp is taken out.

The method indicated by "CONTRIBUTOR NO. 7289" is all right. The difference of 2 inches multiplied by 100 and divided by 8 inches which was the original



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length of the yarn before weaving, gives a contraction of 25 per cent. Profit and loss are figured on the *cost* and the cost is the original figure in that transaction; and just so is the 8 inches the original figure in this case, since we started off with it.

Suppose the question were put in this order. What percentage is the woven length of the original yarn length? You are asking: 6 is what per cent of 8. So 6 × 100 divided by 8 equals 75 per cent. The same sort of problem only asking for another value which you will note is 75 per cent, thus the yarn must have taken up 25 per cent in its weaving. We did have 100 per cent to start with, you know.

The advisors of "CONTRIBUTOR No. 7289" are confused with calculations on loss and regain. If the method suggested by them were used (2 × 100 divided by 6) the result would be 33.33 per cent which is not so. That would be the necessary regain (if I might apply this term to the stretching out of the yarn to its original length again) to bring this yarn back to its original length. We already said that the woven length was now only 75 per cent of the original length and that the regain would be 33.33 per cent or *one-third*, then if we add that *third* to the 75 per cent we shall have our 100 per cent right back again. Does it not appear therefore that our good contributor is correct?

Let us give the advisors another view on it. Suppose we said that the contraction in weaving on a certain piece of goods was found to be 25 per cent and that there had been found to be a difference of 2 inches between the woven length of a swatch and the original yarn length and someone wishes to know what the original length was. Then it would go like this: 2 × 100 divided by 25 or briefly 2 divided by .25 which in either case is 8. Here we are again right back to our original 8 inches and 100 per cent. You can chase it all over the back yard but its still there.

I think "CONTRIBUTOR No. 7289" has the better of the argument and his friends had best brush up on Percentage-Loss (Regain).

CONTRIBUTOR No. 7336

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EDITOR COTTON:

In answer to "CONTRIBUTOR No. 7289," the following rule may be applied to his problem of yarn contraction, as well as to any problem of difference percentages:

$$\frac{(\text{True Value} - \text{Actual Value}) \times 100}{\text{True Value}} = \text{Percentage Difference}$$

In the case of the yarn contraction problem, the eight inch length would be the true value, the 6 inch length the actual value, and the percent contraction:

$$\frac{(8 - 6) \times 100}{8} = 25 \text{ Per Cent}$$

CONTRIBUTOR No. 7338

◆

EDITOR COTTON:

Replying to the question asked by "CONTRIBUTOR No. 7289" in the December 1941 issue, relative to figuring contraction, I wish to say that the only way to possibly arrive at contraction in the warp yarn in weaving any fabric is to subtract the length of the woven cloth from the length of the warp yarn, and divide the difference by the length of the warp yarn, and not by the length of the cloth, since the percentage divided by the base gives the rate.

In his case, 8 inches of warp yarn is the base, 2 inches contraction is the percentage, and 2 inches divided by 8 inches is 25 per cent.

CONTRIBUTOR No. 7337

◆◆

Temperatures Used in Drying Dyed Cotton

EDITOR COTTON:

What is the average temperature generally used in drying dyed cotton and is a higher temperature detrimental to the stock? Do most mills use some sort of softening oil on dyed cotton? If so, is the softener applied after the dyeing and rinsing operation or sprayed onto the dry cotton before the opener operation?

CONTRIBUTOR No. 7262

EDITOR COTTON:

The average temperature in drying dyed cotton seems to be arrived at from the efficiency of the dryer. In the older types of dryers, where production is low and the drying time may be as high as six minutes, the wet end of the dryer should not be over 220 degrees F., and the dry or discharge end should have a maximum of perhaps 190 degrees F. On new dryers where efficiency is high, and the drying time may be as low as 1½ minutes, higher temperatures are safely used, up to 240 degrees F., or even 250 degrees F. It seems that cotton exposed to these high temperatures for a short period of time will not be harmed any more than the same cotton exposed to lower temperatures for longer periods.

I would say that the best temperature for a mill to use should be determined by experiment. The dryer should deliver cotton not actually damp but on the verge of being damp (moisture content about 6.5 per cent).

One point that should be mentioned here in connection with drying cotton is the matter of extracting before the drying is begun. The more thoroughly the cotton is extracted, the less water it contains that will later have to be removed in the dryer. Well extracted cotton will dry easier.

Our mill generally uses 0.5 per cent of a mineral oil, added at the picker, for the purpose of keeping down dust and fly in the card room. I do not believe any other benefits are realized.

In the dyebath we use a long chain alcohol sulfate in a low concentration, 0.2 per cent, for the purpose of keeping the cotton in the dye machine from packing so badly during dyeing that it might later retard washing operations. Fluffy cotton will dry easily, and the carder and spinner will find that their troubles are reduced.

We seldom use any other softeners unless a very soft cotton is desired such as for knitting yarns. In this case, a cation-active fixing agent (substantive softening agent) is added to the cotton in the dye machine during the last wash.

CONTRIBUTOR No. 7279

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What is a Gook Break of 41s Combed Yarn?

EDITOR COTTON:

I would appreciate some of your readers advising me what is considered a good average breaking strength for 41s combed filling, made from 4.10 hank roving, using 1 1/16-inch Strict Middling cotton. Our roving has 1.20 twist multiple, drafting 25.10, made on late model long draft slubber, 8x4. The filling is spun 3.40 twist multiple, drafting 20, on a late model long draft spinning frame.

CONTRIBUTOR NO. 7333

Weave-Room Lay-Outs for Army Fabrics

EDITOR COTTON:

Your "CONTRIBUTOR NO. 7273", on page 110 of the November 1941, issue of COTTON, has asked for weave room lay-out for three constructions, 91x54, 75x92 and 89x68, and has given other specifications for these constructions.

The only fabric we are making comparable to these is a 31-inch, 1.60, 3x1 twill, counting 88x56, made with 12s warp and approximately 8s filling.

On this particular fabric we are running 42 looms per weaver and 40 looms per battery hand on E-Model looms with 8-inch bobbins, and 50 X-Model looms per battery hand on 8 ¾-inch bobbins. Our loom stops average about .75 and our efficiency on three shifts will average from 95 to 96 per cent. We are running 76 to 80 looms per fixer and about 340 to 360 looms per warp hand.

CONTRIBUTOR NO. 7274

EDITOR COTTON:

We have not made any fabrics exactly like those listed by your "CONTRIBUTOR NO. 7273", who submitted three fabric constructions and asked for weave room details from other mills on them. The following fabrics are about our closest numbers to those listed:

40-inch, 70x48, 1.55 yards per pound; 2x1 herringbone twill, 12s carded warp and 7.75s carded filling. On this construction, a weaver's stand is thirty-eight 40-inch looms at 154 picks per minute. The loom efficiency averages about 88 per cent.

31-inch, 88x38, 1.75 yards per pound; 3x1 twill, 12s carded warp and 5.35 carded filling. A weaver's stand is forty 36-inch looms at 160 picks per minute with a loom efficiency of 85 per cent.

40½-inch, 96x64, 2.59 yards per pound; 2x1 twill-weave, 22.5s carded warp and 23.5s carded filling. A weaver's stand is 35 looms at 154 picks per minute, and the loom efficiency is 85 per cent.

All of our cloth is made with feeler motions.

Our weavers' stands are worked out on the basis of their handling 35 to 40 loom stops per hour.

Our loom fixers on these constructions look after about 80 looms each. Their jobs include, in addition to all loom repairs, the setting of harnesses after warps are changed, and all oiling. Warp men lease out and lay in new warps. Battery hands handle between 500 and 600 bobbins per hour.

Loom efficiency is figured by dividing the total theoretical maximum picks obtainable for the schedule period into the total actual picks as shown on individual pick counters. No allowance is made for warps out or other stops.

The loom speeds I have given you are for Draper E-Model looms.

CONTRIBUTOR NO. 7275

EDITOR COTTON:

I note the request from "CONTRIBUTOR NO. 7273" for weave room details on a series of fabric constructions being made for the Army.

At our mill we are making only one twill construction similar to those he describes. This is a 30-inch, 2.10-yard, 88x56, 3x1 twill weave, made from 13s warp and 11s filling.

On this construction, we have 40 looms per weaver, 84 looms per fixer, and 52 looms per battery hand. Our percentage production efficiency is 92 per cent and our total loom stops average .5.

CONTRIBUTOR NO. 7277

Problems Caused by Rubber Shortage

By "Ford"

1. Tender yarn.
2. Poor carding and spinning.
3. Too much or not enough tension on the warp.
4. Poor warping.
5. Shed closes too early or late.
6. Reed is sharp, rusty or uneven.
7. Friction ropes or chains on beam heads do not slip evenly, i.e., instead of the ropes or chains letting off each pick, the take-up may be every 4th, or 5th, or 6th pick in a jerky manner causing an undue strain on the warp threads.
8. Worn harness heddles or knotted heddles.
9. Sharp or worn steel or wire heddles.
10. The loom runs too fast.
11. Shedding motion is unsteady.
12. Shed bears on lay race plate too low.
13. Shed is too high off of the lay race plate.
14. Shuttles are badly worn, cracked or splintered.
15. Shuttle points are rough, broken, dull or protrude above the wooden ends of the shuttle.
16. Lay is loose in its bearings.
17. Whip roll is too high or too low.
18. Knots or weak places in the yarn.
19. Warp may be loose on one side through poor warping.
20. Not enough shafts for the count of the cloth or the reed is too fine.
21. Shaft cords, straps or springs are too tight or too loose.
22. The reed is too narrow.
23. Shuttle rebounding in shuttle boxes.
24. Too much or not enough power on the pick.
25. Boxes are set higher or lower than the race plate.

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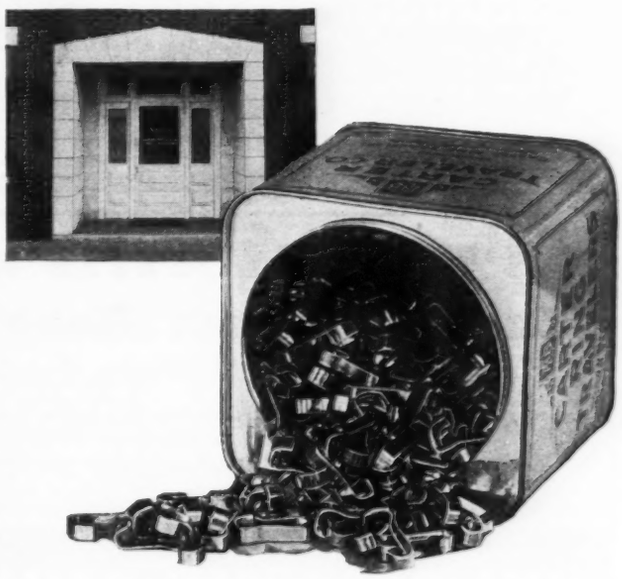

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716. DOW INDUSTRIAL CHEMICALS AND DYES—General catalogue listing Dow products used in textile industry for many purposes including printing, finishing, dyeing and general treatments.—DOW CHEMICAL CO., Midland, Mich.

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732. A NEW FINISHING OIL—Folder on Warco 945-A finishing agent where softness is desired.—WARWICK CHEMICAL CO., West Warwick, R. I.

733. DYED COTTON TEXTILE ITEMS FOR WAR USE—No. 632. Government procurement agencies, specifications with equipment and procedure for dyeing and finishing cotton textiles for war use.—CALCO CHEMICAL DIV., AMERICAN CYANAMID CO., Bound Brook, N. J.

KNITTING . . .

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803. THE TUBE-TEX FOR TUBULAR KNIT GOODS—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste.—H. W. BUTTERWORTH & SONS CO., York and Cedar Sts., Philadelphia, Pa.

804. FULL-FASHIONED HOSIERY MANUFACTURE—Illustrated folder giving the history of full-fashioned knitting and describing in detail the different processes in present day manufacturing and the application of Gulf lubricants to the various machinery.—GULF OIL CORPORATION, Pittsburgh, Pennsylvania.

805. ELASTIC ATTACHING MACHINE—Form 885 on new three needle machine for attaching flat elastic with perfect stretch tension device and other features.—WILLCOX & GIBBS SEWING MACHINE CO., New York City.

806. DEPENDABLE FINISHING FOR MODERN ELASTIC TOP HOSIERY—Describing and illustrating equipment for basting and attaching insert elastic, attaching wide or welt elastic and seaming elastic in women's hosiery.—UNION SPECIAL MACHINE COMPANY, Chicago, Ill.

807. CIRCULAR KNITTING MACHINES—A fifty-two page illustrated booklet containing valuable information on the manufacture of transfer top hosiery. Includes illustrations of rib knitting principles, yarn changers, selvage welt, loose course and methods of laying in Lastex.—FIDELITY MACHINE COMPANY, Philadelphia, Pa.

809. TEXACO IN THE KNITTING INDUSTRY—Folder on knitting mill lubrication.—THE TEXAS CO., New York, N. Y.

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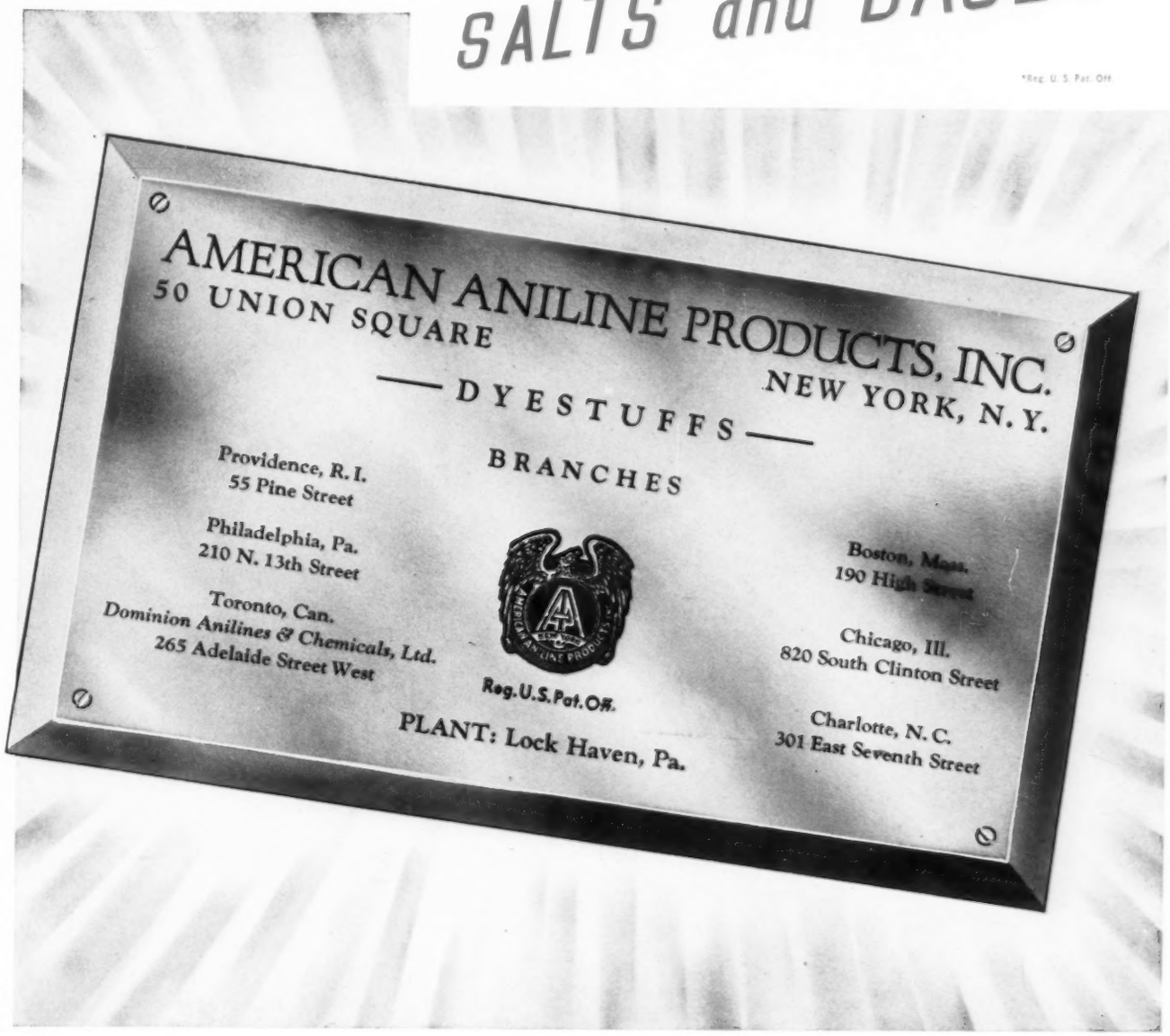

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KNITTING SECTION

Storing Machines Not in Use; and the Rubber Shortage

WE ARE AT WAR, and though many of us have failed to fully absorb the seriousness of this four word fact, the next few months will bring some problems we have never before been called upon to solve. That the seamless hosiery industry will be in for some drastic changes is a foregone conclusion, depending on many factors over which the mills have no control—much will depend on the action taken by the mills themselves, however.

There will no doubt be yarn shortages of various kinds, in addition to the present rubber situation which is causing many mills to ask "What can we do now?". Shortage of machine parts and general mill supplies is sure to follow, which means that we must get the utmost use out of our present equipment and supplies, and keep all present usable machines in good condition by taking every precaution to *prevent* unnecessary wear.

We must prepare for a long uphill pull which lies immediately ahead. Many machines will be stored in warehouses or stand idle in the various departments and much will depend on *how* they are prepared for storage over this long period of idleness. We are certain that such equipment will be used again so it will pay to take some extra precaution to keep the stored machines in good shape.

Storing Machines

Storing machines is not a difficult task to be sure, but it means more than taking them out of the knitting room *as is* and pushing them into a corner in a haphazard fashion. One of the main factors to guard against is *rust* so make sure that the place of storage has a good roof over it and that the windows and walls will prevent rain from coming in.

Constant opening and closing of doors in a storage place will cause changes in temperature and humidity which will affect machinery. The needles and sinkers should be removed if these can be used in machines that are to be continued in use, and if they cannot be used in the machinery that is to be run, then knit a few inches of fabric and saturate it with needle oil to protect these parts against rusting.

Clean excessive lint from sinker rings and sinker caps and oil these parts well. Wrap the complete head of the machine, including cylinder and latch ring, with inexpensive cloth and saturate this with needle oil. This can be done with a fly spray after the heads have been wrapped.

"Store the machines so wind and rain cannot get to them" . . .

Tag and Store Orderly

Each machine should be tagged showing diameter, gauge, number and kind of needles, and the serial number; place the tags where they will not be torn off during handling and storing. Keep a record on file in the mill of all machines stored, showing where they are and what kind of attachments they have, if any. Such a record is mighty valuable in case of fire or other destructive elements such as hail, wind, etc. Some mills do not even have a record on file of the machines in operation, showing in detail what their equipment consists of.

All machines should be stored in orderly fashion so that individual machines can be gotten out if and when needed without moving every machine. If several makes of machines are stored it will pay to keep the various kinds together according to diameters, number of needles and gauge. And last but not least, make sure that one man who knows knitting machines directs the handling and placing—a man not familiar with knitting machines will take hold anywhere and try to lift or move a machine and the final result will be broken castings, bent rods and levers, etc. The novice will usually lay one on the floor, which will convince him the machines are a little top heavy and he will invariably drag a machine across the

Protecting Stored Machines--Substitutes for Rubber Tops

By Albert T. Russell

Seamless mills are facing a new order. Perplexing problems are waiting at the front door of every mill owner's place of business. Shall we give up the ship and close down after many years of labor and expense in building up personnel—or would it be wiser to operate and break even, or take a loss during the existing emergency rather than break up a valuable organization? Closing down may cost more in the long run than operating at a loss. Hope is gone when the wheels stop turning and the doors are closed.—Albert T. Russell.

floor and break at least one leg (on the machine) before he decides to use a truck or set of casters made for this very purpose.

Idle Machines in the Mill

Machines standing idle in the mill or knitting room require little attention insofar as protection from rust is concerned. It is best to cover the heads with wrapping paper to protect them from excessive lint. They should also be cleaned off at regular intervals since loose lint is likely to catch fire from sparks caused by metal pulleys coming in contact with chain racks or machine frames. Sparks from electrical connections and devices have started many fires due to loose lint saturated with oil accumulating on idle machines.

One of the greatest problems connected with having machines stand idle in the knitting room is to keep them from being robbed of various parts. The writer knows a little about this from personal experience. We have had a few machines stand idle for several months and when orders came in making it necessary to start them up, half of them were not fit to run. Why?—well, *someone* (try and find the guilty party) had removed an uppick from one machine and put a broken pick in its place; another machine was minus a stitch cam, and still another had several yarn fingers missing, etc., etc.

The mill was not one of those "tight" places that would not supply needed repair parts, because the parts department was well stocked. The only reason we could think of for anyone doing such a thing was that someone got the silly notion it would be easier to rob a part than to fit a new one.

We also found machines robbed of parts which had been stored away from the knitting, and as usual no one knew a thing about it. We have learned now to keep all machines not in operation under lock and *one* key—and the man with the key is responsible. Under this system we can take machines out of storage and start them up without delay.

Problems Caused by Rubber Shortage

THE PRESENT picture in regards to rubber is one of grave concern on all sides and at this writing, if we are being told the truth by those that should know, indications are that relief is completely out of sight. This means that any change in the seamless production set-up now being made by children's anklet mills and those now producing men's slacks is simply a forerunner of more changes yet to come.

Solving the Problem

During the past few years many machines have been put into production solely because elastic top anklets could be produced on them and sold at a profit—many mills have spent a considerable sum of money developing and building elastic top attachments. No doubt the complete production of many mills depends entirely on elastic yarns, so no elastic means no production.

There are but two answers to such a problem and both bring more complications. The first is to change over to transfer numbers *if* they can be sold at a profit, and this means that ribbers would be needed and operators would have to be trained to do topping and transferring.

"We hope the supply of aspirin holds out—for the headaches" . .

The number of knitters required to operate a given number of machines would have to be tripled and production would drop considerably since elastic top numbers can be produced much more rapidly than transfer numbers. Add to this the time and expense involved necessary to train toppers and you have a job that would stump the OPM.

To add more fat to the fire, most elastic top machines in use today vary as to diameters and number of needles. A few needles more or less made little difference on elastic numbers, but for transfer work each size should have a given number of needles and the number of needles in the ribbers *must* match the knitting machines.

Even if a mill did have ribbers and knitting machines to go with them, changing the knitting machines from elastic top production to transfer numbers would be a nice little job—try it or ask the man who has done it. We hope the production of aspirin will be stepped up as the supply of rubber diminishes so we can take them for headaches that are sure to come.

Also, we must not forget when we start up ribbers that we will need ribber fixers and operators and these will not be easy to find because many have passed out of the picture during the elastic top epidemic. So much for the first possibility.

Sewed-On Top Goods

The second alternative: If for any reason a mill discovers it impractical to change from elastic top goods to transfer numbers (and we refer to anklets) the next logical move would be to make sewed-on top goods. This, of course, means ribbers again and everything that goes with them. However, the number of needles in the knitting machines and the ribbers could vary either way and not make a great deal of difference.

Changing the knitting machines from elastic top goods to string work is not difficult, depending of course to a certain extent on the type of machines to be changed. The

number of knitters required would be the same and no additional amount of training would be necessary as far as the knitters are concerned.

But now we hit another snag in this river made muddy by rubber shortage — we need sewing machines, someone to operate them and sewing machine fixers. Training sewing machine operators would be simple in comparison to training toppers and knitters, however, it takes time and money to build up production in this operation.

Some mills may have machines on hand which were used to welt elastic top numbers and these can be changed to do straight sewing very easily; whether or not sewing machines are readily obtainable today is just another item in the list of what it takes to make changes in war times.

In changing to sewed-on top numbers, we must bear in mind that we are going to produce low end merchandise—in fact we are hitting the *bottom* in the price bracket. The labor cost of producing these numbers is of course much less than transferred top goods (we refer to cost of topping and transferring), but all other costs such as yarn, supplies, ribber fixing, knitting machine fixing, needles, etc., etc., would be about even. The cost of sewing tops and keeping up the sewing machines would also bring the total cost of making either type of goods just that much nearer together, which means the margin of profit in low end merchandise is very slim, all things considered.

So the picture in the anklets end of the seamless hosiery industry is not only complicated but rather uncertain; furthermore much depends on what will happen in the coming months to mercerized, combed and carded yarn deliveries.

During the past few years many anklet mills made a profitable investment when they bought automatic machines which can produce anklets with 1x1 rib tops, with or without elastic plus leg and foot. Yes, it pays to modernize.

The question has been asked if the public will buy anklets without elastic in the top—the answer to that one is that the public will buy

"The public will buy what the manufacturer can produce, or else go barefooted" . . . . .

what the manufacturers can produce or go barefoot. This is war time and we will get used to "getting used to things".

The Half-Hose Situation

The men's hose division of the industry presents a somewhat different picture from that for anklets. The rubber shortage has already caused changes in men's slacks and in most cases the amount of elastic used has been cut in half from what it was one month ago. Some mills are making slacks without elastic; we are told that others are going over to full length half-hose. Whether or not we can get supporters to hold the latter up depends once more on the rubber situation.

Most half-hose mills make either transfer top numbers or have automatic machines which produce a complete sock, top and all; this leaves them in good shape to keep going, providing they can get deliveries on yarns. It has been said that fancy half-hose will gradually decline in volume and plain numbers will take their place. This of course depends on various types of yarn used exclusively by half-hose mills.

The hosiery dyers are rejoicing in that the numbers of colors which can be produced is limited in all lines. The trend has been towards fancy packing in all lines and no doubt the paper shortage will cause some changes here. Much money has been spent in dressing up hosiery which was and is entirely worthless to the ultimate consumer. Yes, the buyers have had their way.

For the first time in many years the mills are doing the telling, and the buyers are listening and liking it, or are they? The war has brought problems and more are to come. With half a chance, the seamless mills will give a good account of themselves.

1942 Knitting Arts Exhibition Cancelled

ON FEBRUARY 25, the National Association of Hosiery Manufacturers announced the cancellation of the 1942 Knitting Arts Exhibition, which had been scheduled to be held in the Auditorium in Atlantic City, N. J., April 27-30. The action was taken on authority of the board of directors of the association, which has sponsored the exhibition since its inception 37 years ago.

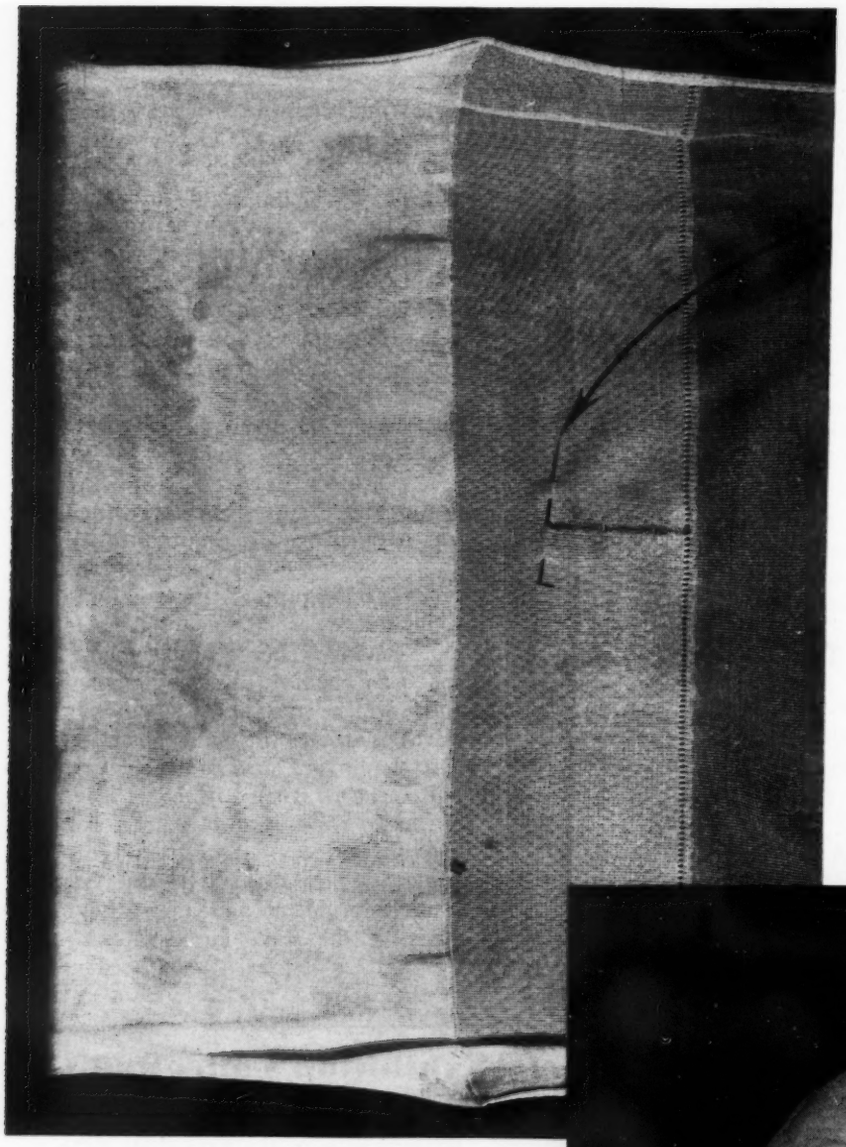
Last September, reflecting suggestions made by many exhibitors during recent years, the Association approved a change in policy which involved changing the Exhibition from an annual to a biennial event, and holding it at Atlantic City instead of at Philadelphia. The plan was submitted to all exhibitors and received an enthusiastic response.

The unexpected entrance of the United States into the war and the resulting actions taken by the government to apply all possible productive capacity to war work created a situation making it difficult, and in many cases impossible, for exhibitors to participate in the Exhibition. The directors presented all of the facts to those who usually exhibit, and while 60 per cent of the space had been contracted for, it was felt that more than this would be necessary for a creditable exposition profitable to both exhibitors and mill men, and the decision to cancel followed.

The by-laws of the association provide that its annual meeting shall be held in April. Usually this takes place in connection with the Exhibition. In view of the cancellation of the Exhibition, the meeting will probably be held in New York City. Announcement on this will follow the meeting of the board of directors this month.

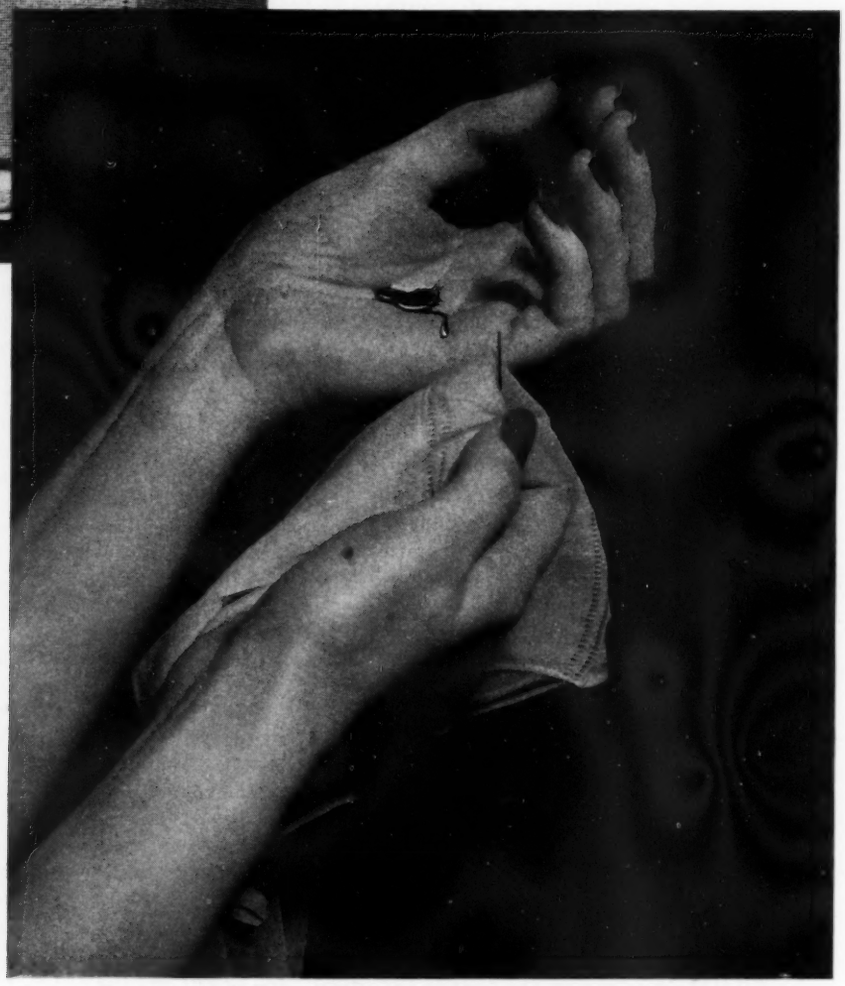
The association announced the cancellation of the exposition with regret, and the hope that the return of normal times will soon permit the resumption of this vital factor in the efficient conduct of the knitting industry.

Knitter Hints (No. 6)



A thoughtless operator does this—

Photos, John C. Fonville of "Cotton"



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WAR TIME

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American hosiery for every purpose is going to fine gauges of various basic American yarns—nylon, rayon and cotton—for the duration and undoubtedly for years beyond. Their use may offer problems to some manufacturers; but not to those who operate with WILDMAN Single-Head, Single-Unit, Full-Fashioned Hosiery machines. This machine knits the entire stocking in one continuous operation, naturally attaining perfect matching of legs and feet. Complete details on request.

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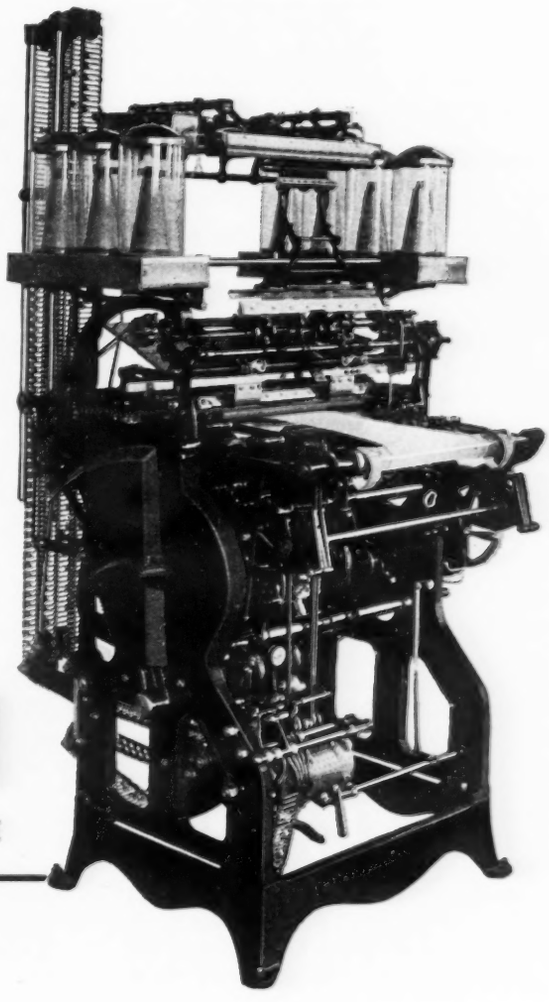

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SINGLE-HEAD, SINGLE-UNIT, FULL-FASHIONED HOSIERY MACHINE

A Look at the Yarn Situation

Chronological record of events in a fast-changing picture

WHEN THE Office of Production Management last July 25 froze raw silk stocks the most serious problems for the American hosiery industry in its history began. These problems in the intervening months instead of becoming less difficult for manufacturers have under war conditions become progressively worse with indications that the present year will see the hose industry forced to make further and probably the most violent adjustment in its history. At the same time it will be necessary for the American consumer of hosiery especially women, to make the most important adjustments for several generations.

While great changes are being made with still greater ones on the horizon there is no danger of the consumer or the armed forces going without sufficient hosiery; the only problem is to make the adjustment in machines over to the production of different type hose to meet available supplies of yarns and raw materials and also to concentrate the production of such types of hosiery into the best plants to produce what is needed, leaving the balance for possible switches over to the production of war materials in the war effort.

John Shireman, hosiery consultant and chief of the silk substitution section of the O. P. M., warned the sixth annual hosiery conference held in New York that the mills must prepare now for progressive contraction of machinery, building space and personnel to leave room for greater war effort. He in fact predicted that rationing of hosiery and telescoping of business are near, urging the mill men not to be caught napping.

He forecast a continued decline in the supplies of nylon and rayon yarns for trade use. His advice to begin studying reduction of plant facilities as has already occurred in England, was a surprise to American manufacturers as was his assertion that "I believe you are all assured that it is going to become a whole lot worse before it is better and it is in the realm of possibility that you will be making utility stockings for men, women and children for rationing rather than the utmost in style that is now prevalent."

Indicating what may be ahead for hosiery manufacturers he said "The plan is one of telescoping your plants, sales force, operations, etc., ahead of time so that you will be prepared to meet conditions as they arise." After their experience since the freezing of silk with regard to obtaining adequate supplies of any type of yarn for the manufacture of hosiery the mill men were ready to believe anything can happen here. After the freezing of silk last July there was a general belief among hosiery manufacturers that they would get along especially in view of the expanding production of nylon yarn which was so favorably accepted by the American consumer and in which plant technical problems in handling were being rapidly overcome.

At that time manufacturers felt that together with large supplies of nylon they would have for other type hose all the rayon yarn they would buy and also large amounts of cotton yarns in the finer sizes to make the lisle numbers which previously the Department of Agriculture and the industry had promoted to aid the cotton farmer. The trade was jolted out of this attitude by a conference in January in New York when the Air Corps notified the trade that it was going to have to have such a large supply of nylon for the manufacture of parachutes for the armed forces, not only of this country but possibly for lease-lend export abroad.

At the beginning of February, Robert R. Guthrie, chief of the War Production Board, textile branch, declared that a serious shortage of nylon for civilian purposes makes the outlook for the hosiery industry "very serious". Seeking to clarify the situation, Mr. Guthrie said that final decision had not been made as yet on a civilian curb of the man-made yarn but added that the Air Force requirements were being stepped up so sharply from day to day that this made the outlook for hosiery supply "pretty grave". He also said that the situation in regard to raw materials for nylon such as phenol, was serious which also entered into the picture.

Earl Constantine, head of the National Association of Hosiery Manufacturers, expressed the hope that a new announcement on prospective Government needs of nylon yarn would not mean an immediate withdrawal of such yarns from use by the hosiery industry. Commenting on the statement of the War Production Board, he said, "Assuming that the Army and Navy will ultimately require all the nylon available, it is conceivable that their ability to convert it into immediate products may be gradual and expanding, dependent upon their evolving the specifications for such products and their readiness to use them."

President Constantine felt that if such were the case it would be possible to reduce the supplies of nylon to the hosiery industry gradually. This would avoid, he pointed out, serious dislocation of the hosiery industry operations. "With silk already withdrawn," he continued, "a substantial or complete withdrawal of nylon obviously would present a most serious problem affecting a product of clothing." He hoped therefore that when the Government made its decision on nylon it would be one that did not require the immediate stoppage of the use of nylon by the hosiery industry. He also emphasized that data on the production of full-fashioned hosiery for 1941 showed that about 75 per cent was silk or part-silk, 20 per cent of nylon or part-nylon and the balance made from rayon or cotton which entered the picture only during the last four or five months of the year. This hinted what serious effect the stoppage of nylon would be on the hose field.

With nylon possibly out of the picture for the hosiery trade, attention has to be given to rayon yarns for this use and here too the situation is tight so far as supplies are concerned. It is not only complicated by the large demand for such yarns by American mills but by the policy of the Administration to supply Latin American countries with as much of this type yarn as is possible in view of the fact that the normal sources of supply of these countries for rayon yarn in Europe have been cut off by the war. In view of this rayon yarn manufacturers have been instructed to allot 4 per cent of all such spindles of 150 denier for export. Latin American firms are to apply for yarn through their regular trade channels which would handle the matter in similar fashion to that laid down in the silk substitution order. American hosiery manufacturers have been receiving rayon according

DELIVERING THE GOODS!

AT STANDARD KNITTING MILLS, INC., Knoxville, Tenn., many modern Union Special machines are used in the production of a broad line of products. Above is a general view of one of the sewing rooms. Below are close-up views of some of Standard's FIFTY-TWO-EIGHT and LOCKSTITCH machines.

NOW is the time when the advanced performance of new Union Special sewing equipment is paying EXTRA DIVIDENDS. In addition to cutting costs and insuring finest quality sewing work, these new machines, through their reliability and high speed are enabling many underwear manufacturers to take on rush contracts and DELIVER THE GOODS ON TIME!

For years Union Special has held steadfastly to the principle of making industrial sewing machines to handle specific operations. To that specialization has been added continuous design development programs and finest engineering skill for the actual building of the machines. As a result, today's Union Special machines stand out as far ahead of their predecessors as those famous units were ahead of existing machines.

Let us help you get every advantage possible for your company. Union Special representatives are widely experienced in modern production practices. We will be glad to supply you with detailed information about machines. Write to UNION SPECIAL MACHINE CO., 438 N. Franklin St., Chicago, Ill.

UNION SPECIAL

to a formula which gives them 75 per cent of the poundage of silk consumed in a base period—the first six months of last year.

The hosiery industry therefore welcomed the increase in the allotment of rayon yarns that was announced early in February by the War Production Board, the new figure being 12 per cent of the viscose and cuprammonium output, after defense, compared with the former 9 per cent allotment. The new figure, it was made clear, is for March only, so that in the trade the immediate reaction was this figure might be increased later on. The new figure represents one-pound of equivalent 100-denier rayon yarn against one pound of silk, which compares with the former three-quarters of a pound of rayon to one pound of silk. Rayon yarns naturally take up larger poundage per dozen pairs of hose than silk and still more when compared with nylon yarns. However, several manufacturers felt the increase in the rayon allotment to those plants would not offset the 25 per cent cut in nylon yarns for the same trade.

Increased Rayon Allotment

Of the total of 12 per cent of viscose and cuprammonium spindles, 85 per cent is intended for use by full-fashioned and seamless hosiery manufacturers formerly using silk, 5 per cent for former silk weavers and 10 per cent for users falling in the "undue hardship," group. Of the total of 6 per cent of the acetate rayon yarn production which is reserved, 80 per cent goes to former silk weavers, 10 per cent to "undue hardship" cases and 10 per cent to the hosiery industry. In this connection, rayon yarn manufacturers have emphasized that hose mills should not feel they are the only ones that cannot obtain all the yarn wanted because it was emphasized underwear mills and weavers have been called upon to make changes in operating schedules. So that in view of this hosiery mill-men were gratified with the larger March allotments of rayon but they assert this does not by any means eliminate their problems. It only eases one of them.

Last October 16 the Office of Production Management issued a silk order prohibiting any further transfer of title to stocks and at the same time required all owners of unbroken bales to report on their holdings by October 30. The last order was dated February 9 under which the entire raw silk supply in the United States was turned over to the War Production Board. In this ruling it was ordered that: (1) No sale of raw silk may hereafter be made except to and by the Defense Supplies Corporation; (2) Until February 23, silk previously purchased may still be delivered to parachute manufacturers, if available. After February 22, all deliveries must be made to the Defense Supplies Corporation, which in turn will make available whatever quantity of raw silk is required by a parachute manufacturer to complete an order; (3) after March 1 no silk may be used in the manufacture of parachutes until the grade and type has been approved by the Defense Supplies Corporation. This is to make certain that certain types silks of high grade are conserved for the canopies of parachutes and are not used in the shroud lines or in the cord of shroud lines.

What hosiery manufacturers had been fearing was about to come in connection with future supplies of nylon yarn was announced by the duPont company itself, that shipments were to be cut sharply for civilian use. The announcement said: "Shipments of nylon yarn for commercial use must be reduced drastically because of demand for military purposes. Until further notice, the yarn will be offered for civilian use only on a spot basis if and when it is available. The nylon division of the company will endeavor through its district offices to keep commercial manufacturers advised of the supply situation." Following the announcement there were reports in the market, without official confirmation, that they might receive their last yarn shipments from duPont in the shipping period ending February 27, and manufacturers felt in mid-February that by May 1, all production of nylon hosiery would no doubt be finished.

While hosiery manufacturers realize that this step was imperative under the war program with its extensive need for nylon to take the place of silk in parachute cloth this does not make the blow easier to take. Coming just a couple of days after OPA had made its announcement concerning price ceilings for nylon hosiery in the wholesale market, it meant that further important changes in mill operation would have to follow, and that manufacturers would have to dilute the remaining lots of nylon yarn with available other fibers, making the nylon go as far as possible.

Government Takes All Silk

The termination of silk ownership by the mills was made official by a ruling of the War Production Board dated February 10 in which all silk processors were ordered to sell their entire stocks of raw silk to the Government-owned Defense Supplies Corporation, on penalty of having the silk requisitioned immediately. The Inventory and Requisitioning Section of the board sent telegrams to 146 mills, notifying them that the supplies were needed for war use. The telegram declared: "Government requires for war production all raw silk in the United States. Unless you arrange to sell your entire holdings of raw silk to Defense Supplies Corporation at ceiling prices within the next forty-eight hours we will requisition your inventory." Processors were instructed to reply by telegrams, informing the War Production Board whether or not they were willing to sell and if they were willing to give the exact location and size of the stocks in their possession.

A New Fiber from the Test-tube: Aralac

(*Continued from page* 71.)

and stability to deterioration because of the raw material from which it is made. The weaknesses of a protein fiber as first made by the Italians does not indicate the job cannot be done better. On the contrary, you should expect American chemists to start where others have stopped and really complete the job of giving you a man-made protein base fiber. There is no reason for any limitation as to the stability of any fiber from a protein base. On the contrary, even though you have had silk and wool for thousands of years, you have seen nylon offering improvements on silk; and there is no reason for us to stop until other fibers show improvements on wool. As I pointed out, our protein base fiber is not released until it has been transformed into another resin-like material; therefore, there is no reason to expect a lack of stability in any way.

We know that hides can be easily decomposed into gelatine glue, and fertilizer. We also know that hides can be transformed into tough, extremely stable products which, as leather, are good for the ages. In the manufacture of Aralac, any chemist familiar with our process will agree that we are stabilizing our protein compound by far more rugged methods than are used in tanning leather.

Aralac in Knitting

Aralac has been developed for use as a textile fiber for blending with cotton, wool, rayon, mohair and combinations of these fibers. It is used, in varying amounts up to 50 percent, in blends. It comes in 3, 5 and 7 denier cut in any length up to six inches. In the knitting field, blended yarns containing Aralac are being tried in both underwear and outerwear as well as in the hand-knitting field.

U. S. Navy "E" Insignia (twice size) awarded employees of Textile Machine Works for outstanding production of Naval Ordnance materials for defense.

Stocking dreams come true . . . Every woman knows that her stocking dreams can come true only through the quality of the fabric. Every hosiery manufacturer knows that his fabric can only be as good as the needles will produce—that higher quality means better business. . . . Keep your knitting machines young and effective with TMW Needles.

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"The burden which is well borne becomes light."

OVID

Regardless of the fibre used, the new READING 30-section 51-Gauge Full-Fashioned Knitting Machine produces 104 per cent more volume and 156 per cent more value than ordinary 20-section 42-gauge machines. . . . *And remember: Money invested in modern machinery serves as insurance for your total investment.*

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KNITTING KINKS

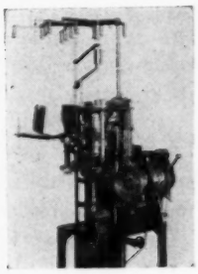
Bonus or Piece-Work?

EDITOR COTTON:

Regarding bad work (seconds, thirds and waste), would not an hourly pay rate plus a bonus be more efficient than the piece work system? What would be a sound and reasonable method docking seamless hosiery workers for the bad work they pass?

CONTRIBUTOR NO. 7343

The Komet Machine



Article 13

Transferring on the Komet (continued)

TWO VIEWS of the upper transfer section for a 4-inch Komet are shown herewith; this is a reproduction of Plate 24-G of the Komet and Links and Links machines catalog of parts. Up transfers are made by the lower transfer cam discussed in a previous article and down transfers are made by the upper transfer cam (204863). The dividing cam (204970) supplies the means for unhooking the needles after they have been transferred up or down. All adjustments and settings of parts which control the movement and action of sliders during the transferring operation are necessarily *very close*. Careful consideration should be given if and when these adjustments are changed for any reason. Ample adjustment facilities are provided and they must be fully utilized, thoroughly understood and properly made to get results.

Upper Transfer Cam Action and Adjustment

When your Komet leaves the test line you may rest assured that the upper transfer cam has been properly fitted and adjusted, checked and rechecked; the tester is well aware of its importance. Three lengths of slider transfer butts are used in the upper cylinder and these are long, medium and short. When the 1x1 top knitting is completed the double transfer is made. At this point the upper transfer cam moves in one-third its distance of movement and guides all sliders with long transfer butts downward, thus transferring the needles controlled by these sliders from the upper to the lower cylinder. This is the beginning of broad rib or leg knitting and here the first down transfer of needles takes place.

At this point the upper transfer cam should move in far enough to just clear the medium transfer butts and take a full hold on the long butts. A cam on the quality drum supplies the necessary amount of inward movement if the lever adjusting screw is properly set.

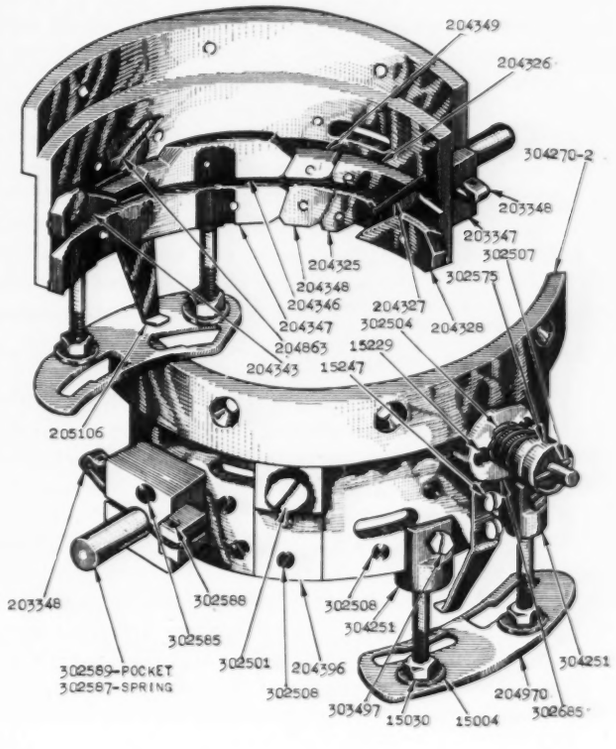
The second down transfer is made just before going onto the heel. This transfer can be made sooner or later according to the position of the cam on the quality drum. At the second down transfer, the transfer cam moves in far enough to lower all sliders with *medium* transfer butts (long butts are also lowered again) and at this point the transfer cam should be two-thirds in so it will just clear the short transfer butts.

The third down transfer is made just before the toe knitting begins and here the transfer cam goes fully in and lowers all sliders with transfer butts, thus completing the transferring of all needles to the lower cylinder which had been knitting in the upper cylinder.

At the first and second down transfers it is impossible to *see* how much clearance we have between the face of the transfer cam and the butt it should *clear;* we must, therefore, depend once more on our sense of feel to get the proper setting. Now, someone may ask just how much clearance should we allow at the first and second down transfer? 1/32-inch

PLATE 24-G KOMET

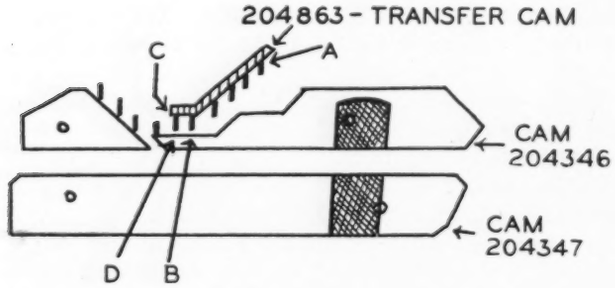
UPPER TRANSFER SECTION FOR A 4" - 24 GAUGE KOMET MACHINE WITH OR WITHOUT REVERSE WELT



is sufficient. Keep the transfer cam in as *near* to the butts it should *clear* as possible and make sure that the transfer cam does not rub against these butts.

Now, in addition to clearance of butts at points of transfer, there is one other vitally important factor in connection with transferring and that is how far *down* the sliders are moved by the transfer cam. This part of the transfer cam's work has also been carefully checked by experts who know how.

The sketches herewith show transfer butts being



lowered by the transfer cam. Butts start down at "A" (see illustration); when the butt reaches "B" the needle should be hooked onto the slider in the *lower* cylinder. As the transfer butt moves from "B" to "C" there is no need to lower it still further, however, the butt may move down slighly after passing point "B" so long as it does not put pressure on the needle while it is hooked to *both* upper and *lower* sliders. Also, the transfer butt should not bind between the lower surface of the transfer cam at "C" and the upper surface of guard cam (204346) at "B" immediately below the transfer cam's lower end.

The transfer cam bushing (302685) can be turned to slightly increase or decrease the distance the transfer butts move downward. If for any reason it should become necessary to move the bushing either way or remove it from the section completely for polishing or cleaning, make sure to place it in its original position and test it for free in and out movement.

Needle hooks can be damaged at the point of transfer by sliders coming down *too far* or not far *enough*; improper placement of the bushing can be at fault in either case. Bear in mind that the slider in the lower cylinder is held firmly in place by the knitting butt resting on the guard cam, therefore the distance the needle can be safely moved down by the slider in the upper cylinder is *limited* and depends entirely on the position of the upper transfer cam.

Quality Drum Cams

Three heights of cams are used on the quality drum to move the transfer cam in and out the proper distance at the correct time. The respective heights of these cams represent the difference in length of the long, medium and short transfer butts.

At the double transfer make sure that the upper transfer cam remains in until all sliders which have been raised by the lower transfer cam have passed the point immediately *below* the upper transfer cam, *before* it is moved fully out. Failure here means an incomplete transfer resulting in damage to needles or sliders or both. To prevent this it will be noted that the cam on the quality drum which actuates the upper transfer cam is slightly longer on the rear end than its mate, which controls the lower transfer cam action.

Sometimes we find that the nnger which rides over the quality drum cam will fail to fall fully off the cam at the end of the last quality drum move when the double transfer is completed. This keeps the upper transfer cam in action during leg knitting and may cause damage to sliders. By all means do not proceed immediately to grind off the back end of the drum cam to correct this trouble, but check up the drum movement and see if it will stand sufficient advancement to make the finger drop off of the cam.

Bear in mind that drum cams do not get longer but the racking pawl may become slightly worn and fail to move the drum far enough forward. Very often machine fixers invite trouble by grinding off the front or rear of a drum cam without first giving due consideration to the mechanism which supplies the drum movement. Ample adjustment facilities are provided, which, when properly utilized, will correct minor troubles in connection with upper transfer cam movement.

At every point of action the upper transfer cam is controlled entirely by drum cams; two factors are very important and these are time and distance. The drum racking mechanism and adjustments plus the lengths and location of the respective drum cams control the *time* at which the upper transfer cam moves in and out. The respective heights of the drum cams plus lever adjustments control the *distance* that the upper transfer cam moves in and out. We shall have more to say about quality drum cams later on. If we stop to consider for a moment, time and distance have much to do with out daily life; we are all going somewhere and much depends on when we arrive—or if we arrive at all.

The Dividing Cam

Two views of the dividing cam (204970) are clearly shown in Plate 24-G reproduced herewith. The dividing cam is held in position by two posts (304251), the posts being attached to the upper transfer section. Adjustments are provided which permit raising or lowering, moving the cam toward the cylinder or away from it.

The purpose of the dividing cam is to unhook the sliders from needles which have been transferred up and/or down. Unhooking of sliders from needles is done as follows: Note the dividing cam on the lower section, up transferring takes place at the narrow slotted portion immediately behind the post. Immediately after the needle has been hooked onto the slider in the upper cylinder (the lower slider continues to move toward the right), the small step in the slotted portion cams the upper end of the slider out, which causes the lower slider to move away from the needle, then the lower slider is drawn down to its normal position and the unhooking operation has been completed.

Transferring from the upper to the lower cylinder is done in the same manner except that the sliders are coming down and are controlled by the slot-

U. S. ARMY PHOTO

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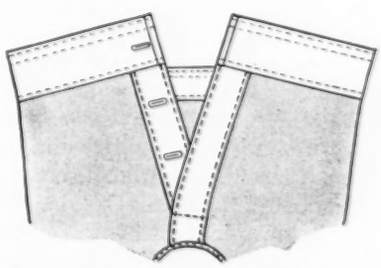
Style 992-XX-23

Willcox & Gibbs Sewing Specialists will gladly cooperate with manufacturers on any technical problem incident to the production of items for Defense.

Willcox & Gibbs is cooperating with the United States Government in conserving metals that are required for our armed forces.



The drawing illustrates the drawer-facing operation on knit underwear.

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ted part in the righthand end of the dividing cam. Much depends on the position of the dividing cam and three things are important; first it should be level horizontally, second the posts should hold it at an imaginary line exactly between the upper and lower cylinders, and third, proper clearance should be kept between the inner part of the dividing cam and the needles.

Each of the foregoing positions is directly related to the other since all three affect the camming out of the sliders necessary to unhook them from transferred needles.

It can be readily seen that if the dividing cam were not set horizontally level it could not act on the sliders coming up and down in the same way. Sliders should be cammed out the same distance in both cylinders. For the very same reasons the dividing cam must be located centrally between the upper and lower cylinders; if the cam were set too high it would cam upper cylinder sliders farther out than lower cylinder sliders.

Now as to distance or clearance between the inner part of the cam and the needles, this will vary according to gauge and kind of needles used. On 4-inch 24-gauge machines using a number 403 needle and normal counts of yarn, we find that .005-inch clearance between the dividing cam and rib needles (with fabric) is sufficient. The setting is made and checked while the heel is being made. Slightly more clearance may do no harm but never use less. We are referring to two-feed machines and not Links and Links.

Keep in mind when making this adjustment that nothing is gained by excessive camming out of sliders, but this does invite trouble. Insufficient clearance between the dividing cam and rib needles will cause holes in the instep by stitches rubbing against the cam during reciprocation of the cylinder.

The tester at the factory spends much time fitting and checking and testing the dividing cams; they are right in every respect when machines leave the test line.

After machines are thoroughly loosened up in the mill, some slight changes may be necessary and here is where the fixer must be careful. If, for example, he should decide to lower the dividing cam he will do well to check its position in the heel or toe just before the back picker goes into action. See how much clearance there is between the upper end of the sliders which have been raised by the lifters and the underside of the dividing cam. At normal position there is approximately 1/32-inch clearance at this point, which is ample. We have seen dividing cams lowered far enough to cause damage to sliders and in such cases machines gave trouble until corrections were made.

Occasionally we find a dividing cam which cannot be set in far enough to give the desired clearance due to limited space in the post holes. In such cases make the post holes larger by using a small round stone in a hand grinder. Dividing cams can of course be broken through accidents such as a bad jam-up; fitting a new cam is not difficult but does require some careful attention. In removing a broken cam do not remove the posts from the section; the better plan is to remove the two lower post nuts and thus get the cam placed at the same position on the posts as the old cam was.

Next, get the machine on the heel and set the cam for clearance by inserting a feeler gauge of correct thickness between the cam and rib needles. Have the sections of rib needles equally divided in front of the cam when the feeler gauge is inserted and move the cam inward flush against the gauge.

All dividing cams are accurately made and in most cases a new cam will fit any machine without any attention other than setting it properly. Sometimes there are slight variations and a new cam may move the sliders farther out on the camming out step, causing the sliders to bind in the recess provided in the dwell cam (204347) at the fully out position. This can be checked at the double transfer for both upper and lower cylinder sliders. Should the sliders bind or be moved out too far it will be necessary to lower the camming out step on the dividing cam by polishing or grinding. In doing this work, proceed with caution because five-thousandths of an inch here may mean the difference between a properly fitted cam or a ruined new cam. It is only necessary to cam sliders out far enough to assure unhooking after the transfers have been made. Excessive camming out will cause trouble at the transferring points in numerous ways.

Make sure when fitting up a new dividing cam that the surfaces on which the sliders ride while transferring are well polished; rough places will cause damage to sliders.

In the Komet instruction book under the heading "Notes on Komet Machines", there is a statement of very much interest: "It is rather difficult to describe this operation on paper; it can be understood very easily by turning the machine slowly through one of the transfers."

The writer of this series realizes this and has attempted to cover this interesting subject as well as his limited knowledge and experience permits.

The Clearing Cam

The clearing cam (204327) brings the sliders down after they have passed the two-feed rib knitting point. Movement for this cam is supplied by stepped cams on the quality drum and transmitted to the operating lever (203348) by the usual cable method. The clearing cam acts only on slider knitting butts and its time of movement is governed by the position of the stepped cam on the quality drum. Its distance of movement in and out is controlled by the overall height of the drum cams and the height of the steps on either end.

Its full range of movement is fully out, half-way in and fully in, remaining in the latter position at all times except when the welt is being made. At this time (to make a plain welt) the clearing cam is held fully out to permit needles which have been transferred up to hold their stitch and stop knitting, while knitting continues in the lower cylinder.

The clearing cam moves half-way *out* while long butt sliders are passing, far enough to clear short butts and fully out while short butts are passing in front of it. Going into action it moves half-way *in*

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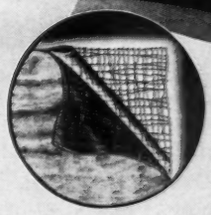

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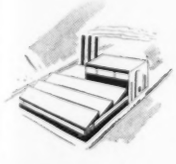

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while short butt sliders are passing in front and fully in while long butts are going down.

Check the cable adjustments at the half-way position in case of trouble, and make sure the inner face of the cam will just clear the short butt sliders as they pass by in front of the cam. Broken butts may become lodged in the clearing cam bracket (203347) and cause the cable to break or stretch. At times nipples will be pulled off the end of the cable. Resetting of cable adjustments should be carefully done and checked when such things happen.

Make sure, in case of trouble, that the spring (302587) in the pocket (302589) is not broken and that the lever (203348) moves freely in the pocket. Sometimes we have trouble with cables becoming frayed due to several strands being broken at a point immediately in front of the ferrule in the post which holds it. This is usually caused by carelessness in setting the post; it should be set so the cable will lead straight to the clearing cam lever out of the hole in the ferrule and not rub against the sharp edge of the ferrule post hole. Make sure that the spring band guide (205106) is set well up so that needle latches cannot come in contact with its lower end as they pass by. Bent latches will result if the guide is set too low.

The remaining cams in the upper transfer section require little attention other than keeping them tightened securely and removing nicks or gaps caused by slider butt contact and camming action at various raising and lowering points in the races.

We find that all Komet cams and parts stand up exceptionally well. Polishing cams, cleaning foreign matter out of the races and proper lubrication at regular intervals are three important little jobs which pay big dividends. Do these three little jobs today—tomorrow is the day you'll *wish* you had.

K. O. METZ

Stitch Variation on Rayon Full-Fashionend Hosiery

Says twist in yarn is one of primary causes of this difficulty . . . . . .

EDITOR COTTON:

I noticed the question of "CONTRIBUTOR NO. 7272" on page 138 of the November 1941 issue of COTTON. He is having a variation in the stitch on the right and left sides of the stockings since starting to run rayon full-fashioned hosiery. Looking at the section from the front of the machine, the left side of the stocking has a tight stitch and a better appearance, while that on the right is more loose, and he wishes to know if anyone can tell him what causes this difference in the stitch formation.

The variation of the stitch of rayon between the right and left sides of the stocking is caused by the twist in the stocking. If running a rayon with right twist, you will notice that one side has a better formation of stitch than the other, and if this process is reversed and you start running a left-hand twist rayon, you will find the other side has a better formation of stitch than the opposite.

It seems that this will always occur in rayon due to the nature of the fiber, unless some type of compensated twist of both right and left is put into the yarn. This would tend to cause each side to have the same appearance in formation of stitch, but as long as a single end twist is used, this contributor will probably have this difficulty.

CONTRIBUTOR NO. 7322

An Eye on the Knitting Mills

Massachusetts Textile Company, Fall River, Mass., has been liquidated and the machinery sold. The concern manufactured hosiery.

Interstate Hosiery Mills, Albany, Ga., have purchased eight 45-gauge full-fashioned knitting machines.

Headland (Ala.) Hosiery Mills have added two 45-gauge full-fashioned machines, coming from Archer Hosiery Mills, Columbus, Ga., after being rebuilt.

Goodyear Corporation, High Point, N. C., has received a charter to deal in hoiery, underwear and knit goods. Authorized capitalization is $100,000. Principals are Owen Reese, Margaret Wooten and H. S. Haworth, of High Point.

Villa Rica (Ga.) Mills, Inc., have installed a department for the manufacture of pants and shirts. Outlay is said to be $32,000.

B. A. Lynch, Blytheville, Ark., is reported to be heading a project to operate a mill in that town for the manufacture of nylon hosiery. Machinery installation is estimated to cost over $200,000.

Irvac Knitting Mills, Inc., Brooklyn, N. Y., plans operation of a mill making knit outwear specialties. Capital is $20,000.

Continental Hosiery Corp., New York City, has been organized with capital of $200,000 to operate a knitting mill making full-fashioned hosiery.

Aileen Mills Company, Biscoe, N. C., have installed three Cidega knitting looms.

Burlington Mills Corporation, with headquarters in Greensboro, N. C., have purchased the McLaurine Hosiery Mill, Asheboro, N. C. The mill operates approximately 140 knitting machines, manufacturing half-hose. It is said that the older equipment will be replaced as soon as possible.

Mobile Knitting Mills Co., Inc., New York City, have been organized with capital stock of 100 shares, no par value, to operate a mill for the manufacture of woolen knit goods of various kinds.

Nocturne Corporation, recently organized at Rock Hill, S. C., will operate a knitting mill for the manufacture of women's hosiery. W. A. Dodd is president.

Canadian-American Company, Cleveland, Ohio, has purchased the plant of the Durham (N. C.) Hosiery Mill, located at Chapel Hill, N. C.

Elliott Knitting Mills, Inc., Catawba, N. C., will expand the finishing department in a new one-story addition totaling about 7,500 square feet.

Parker Hosiery Mills and Dye Works, Inc., Portsmouth, Va., have been sold at auction for $49,500 to the RFC.

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TRENDS AND HIGHLIGHTS OF THE KNIT GOODS MARKETS

Little Nylon to Be Available to Hose Mills—Will Go into Parachute Cloth—Rayon Yarn Allotment Increased—Rationing of Most Knit Goods in Sight—Ceiling Placed on Nylon Hosiery—Union Demands Cost-of-Living Wage Boost—Knit Goods for Armed Forces Increase Further

February 16, 1942

SHIPMENTS of all types of hosiery in 1941 totaled almost 12 per cent larger than during the previous year but involved were some of the most important changes in product that the industry has made in any year. This involved the stoppage of silk imports and the switch of the industry to nylon, rayon and cotton types. Also involved in the gains of the year were the tremendous quantities that are being taken by the armed forces of the country with these to expand much further in the present year due to the greatly enlarged Army and Navy. The stoppage of rubber use by several lines is exerting a powerful influence in styling as manufacturers attempt to offset this loss by changes in construction, underwear mills, for example, using only about half the former elastic in tops of garments. Wool allocation order is having a decided effect upon the type of goods being turned out by outerwear mills, increasing the amount of cotton, spun rayon and other substitutes in such garments.

Full-Fashioned

December shipments of full-fashioned silk hosiery showed a decline in line with the trend since the stoppage of silk use but other full-fashioned types showed a corresponding expansion including nylons and rayons. The report covering that month, prepared by the National Association of Hosiery Manufacturers, gave mill shipments that month of only 503,000 dozen pairs which was a drop of 81 per cent compared with the same month a year previous. Shipments of all-nylon for that month were 439,000 dozen pairs which was a slight decrease from the 458,000 dozen pairs for the same month a year previous. Shipments of rayon full-fashioned for the month totaled 355,000 dozen pairs and those in cotton were 82,000 dozens, there being no comparison for these types a year previous. Shipments of women's full-fashioned for the entire year 1941 totaled 42,656,330 dozens which was 1.4 per cent under the total for the previous year.

Hosiery manufacturers are now confronted with the need in the coming months to find a substitute for nylon which has been the backbone of the full-fashioned trade since silk was stopped. The Government has indicated that the use of nylon will be restricted in the coming months to military fabrics, mainly parachutes. In view of this manufacturers will probably have to use more rayon to offset this loss and in this connection there are signs the hard twist rayon yarns about which there has been considerable discussion in the trade for months will come into more prominence. With nylon and silk out of the question for most manufacturers and with chance of obtaining fine count cotton yarns not bright due to the heavy military demands for such yarns, it is likely that the hard twist rayon yarns will develop into the major source of supply for full-fashioned goods. In this connection there are reports that full-fashioned goods made of such yarns are meeting with good consumer reception.

Half-Hose

Shipments of half-hose in 1941 were 23 per cent larger than during the previous year, according to a report of the National Association of Hosiery Manufacturers. There was a decline in shipments of all-silk goods but other branches of the business registered gains for the period with the largest percentages increase occurring in wool half-hose and this was in part due to the large amount of such goods taken by the armed forces. This demand was expanded greatly due to the enlarged Army in the present year with indications numerous plants will shortly be working exclusively on goods for the Army or the Navy.

The last year was also a good period for the sale of men's slacks or the short type sock but with the stoppage of the use of elastic the chances are this type goods will contract in 1942 because manufacturers do not see just how they can be sold widely with no rubber to put in the tops. Shipments of slacks during the year were up slightly more than 35 per cent which was a larger increase than occurred in the half-hose trade as a whole.

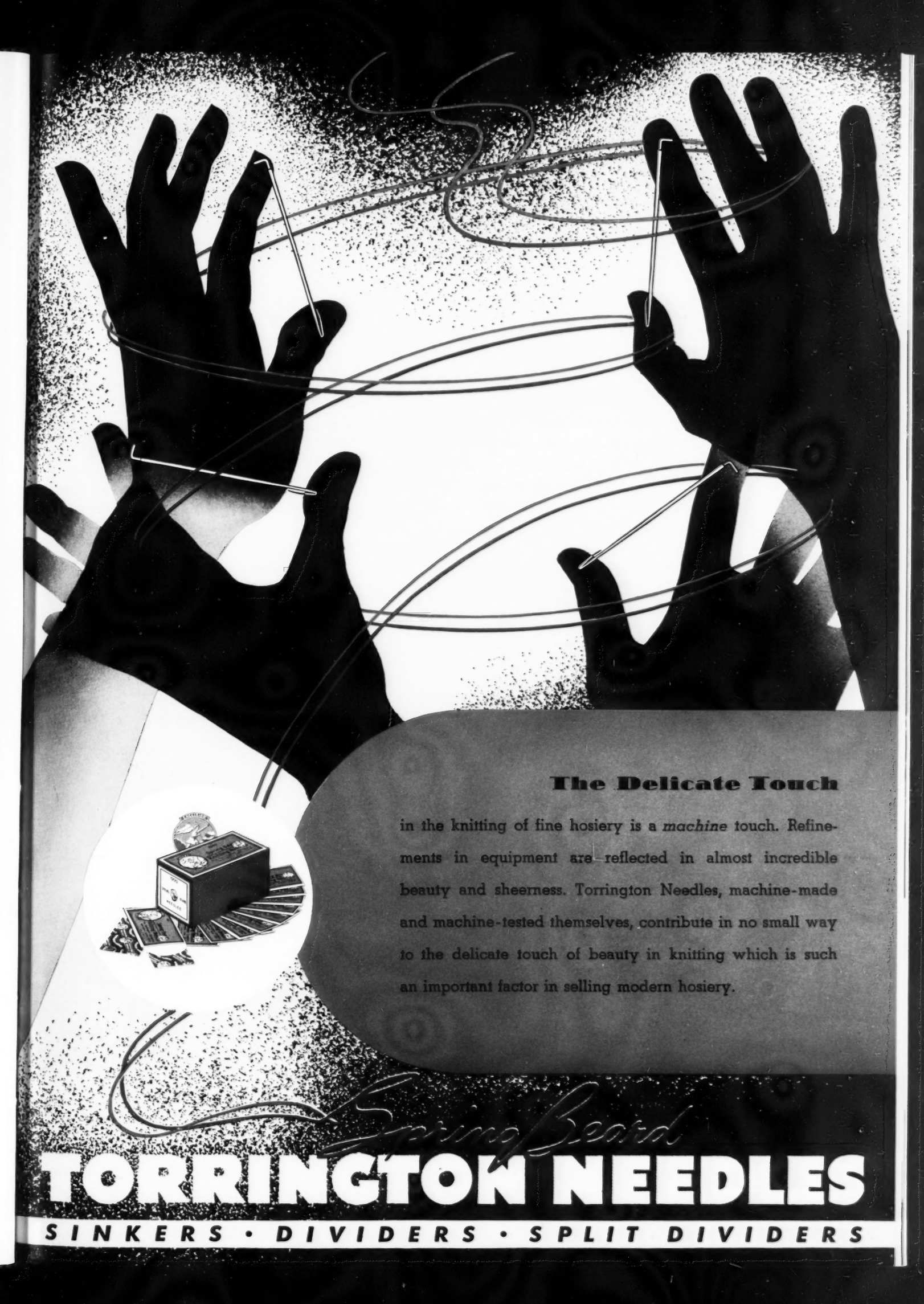
Seamless

This section of the market has been affected somewhat the same as the full-fashioned end of the business by the stoppage of silk use so that shipments for the year showed a decline in those for silk with gains in other types of seamless. Shipments for the year were almost 7 per cent larger than during the previous year but a feature of this was the outstanding gain achieved in shipments of the campus hose, which jumped 78 per cent compared with the previous year. Gains registered in other sections were 4.2 per cent for full-length goods, a drop of 20.4 per cent in silk, a gain of more than 29 per cent for rayon, a gain of 8.7 per cent for cotton while the expansion in wool seamless shipments was 9.2 per cent.

Underwear

War is bringing changes in the underwear business. This industry in 1941 produced the largest volume of goods in its history but this mark is sure to be broken in 1942 and 1943 under the urge to turn out enough goods for the armed forces and for the civilian trade. Manufacturers have to make important changes that will cover the new situation under war conditions. One of these alone is so important as to call for major adjustments and that is the wool conservation order of the Government. It is expected that all the domestic clip will be taken for the armed forces so that mills have been asked to curtail operations as much as 50 per cent in the first quarter of this year compared with the first six months of 1941 average consumption for a quarter.

In another direction manufacturing will have to curtail style and variety of garments for the civilian trade and as President Roy A. Cheney, head of the Underwear Institute, has declared, it is probable that in the next two years the type of underwear in the United States will go back about fifty years when warmth and not style was wanted. Under this condition he ex-



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pects that demand for the heavy types of underwear will expand rapidly such as the fleece lined numbers. Men will want garments that are warm and that will wear under the new situation in the United States. If true, and most agree with the prediction, then manufacturers that continue to make goods for the civilian trade should pay less attention to style and more to utility in the present year and, if the war lasts, into 1943. December production in the knit cotton and wool end of the industry dropped slightly compared with the preceding month, showing 2,096,000 dozen compared with 2,117,000 but compared with December, 1940 production in 1941 was up 42 per cent.

Nylon Shipment for Civilian Use Cut

Shipments of nylon yarn for commercial use must be reduced drastically because of demand for military purposes, according to an announcement made by the du Pont company, which also stated that until further notice, the yarn will be offered for civilian use only on a spot basis if and when it is available. "The nylon division of the company will endeavor through its district offices to keep commercial manufacturers advised of the supply situation." Hosiery manufacturers understood without confirmation that they might receive their last yarn shipments from du Pont in the shipping period ending February 27. Such a suspension would be in line with a recent statement of the War Production Board that an amount of nylon equal to all last year's output would have to be diverted to military needs.

Vastly increasing demand for nylon for military uses is the major development forcing these steps which is also accompanied by a conversion of part of the production of regular rayon yarn to extra fine and high tenacity yarns which military representatives have said were urgently required. Producers of rayon yarns were reported to have objected strenuously to the nylon-rayon distribution plans inasmuch as they would be required to make considerably more yarn of the acetate and viscose types available to the hosiery industry and cut by similar amounts their sales to regular customers.

The elimination of nylon for civilian use also is causing hosiery manufacturers to revise their plans for use of nylon already on hand. Stockings made completely of nylon are already becoming more scarce and are expected to pass out of the picture completely. Part nylon-part rayon stockings are expected to become the vogue for a while, at least until the supply of nylon in the hands of such manufacturers is exhausted.

Opposed Immediate Nylon Withdrawal

Earl Constantine, president of the National Association of Hosiery Manufacturers, expressed the hope that the new announcement on prospective Government needs of nylon yarn would not mean an immediate withdrawal of all such yarns from use by the hosiery industry. "Assuming that the Army and Navy will ultimately require all nylon available, it is conceivable that their ability to convert it into immediate products may be gradual and expanding, dependent upon their involving the specifications for such products and their readiness to use them." President Constantine felt that if such were the case it would be possible to reduce the supplies of nylon to the hosiery industry gradually. This would avoid, he emphasized, the serious dislocation of the hosiery industry operations.

He quoted the latest figures on women's full-fashioned hosiery production covering 1941 showing that about 75 per cent was of silk or part-silk, 20 per cent of nylon or part-nylon, with the balance made up of rayon and cotton which entered the picture only during the last four or five months. This further emphasized what the loss of silk eventually meant and also hinted what the loss of nylon would mean. Stocks of nylon hosiery with manufacturers are not generally believed to be large although in certain sections of the retail business they may be of fair size in view of the fact such buyers for months have been trying to get as much nylon hosiery as possible to make up for the loss of silk. The last report on nylon hosiery stocks with manufacturers was early last fall when the figure was 580,000 dozens of full nylons and 221,000 dozens of part-nylons.

DuPont Ends Sale of Certain Weaving Deniers

Early in February the nylon division of duPont announced discontinuance of a group of deniers of nylon yarn which includes all those in the group of "high tenacity" yarns. The deniers which the company is eliminating and that fit into non-hosiery use are 37, 56, 65, 74, 93, 111, 131, 167 and 195-denier. These are the entire range of deniers put in the "high tenacity" class when the present price list was established in October 1940. The high tenacity yarns are described as having a higher strength and likewise a somewhat lower elongation than the hosiery yarns. In some quarters of the market it was felt that the elimination of these "high tenacity" yarns meant the disappearance from the market during the war of nylon neckties, underwear, dress fabrics, umbrella cloth, under garments, corsets and a number of other items which have appeared on a semi-commercial basis.

No Exemption from Rubber Order Seen

The National Association of Hosiery Manufacturers after making a survey in Washington reported that no exemption from the rubber order can be expected by manufacturers of half-hose, infants' hose and anklets, despite the consumption of 182 tons by these lines in 1941. Because of the denial of rubber to hosiery men as to many other industries, the association commented that in the case of half-hose it may be necessary for manufacturers to train learners in transfer top knitting in an amount which will exceed the 5 per cent allowable under the wage and hour law. It was said in this connection that Merle D. Vincent, director of the hearings branch of the Wage Hour Division, had informed the association, he was prepared to approve the employment of the necessary number of such learners on a showing of fact. The break-down of the poundage of rubberized yarn used by the hosiery industry last year was as follows: covered latex, 766,878 pounds; uncovered latex, 3,838 pounds; and covered cut rubber, 313,041 pounds. Tabulation of reports from 210 hosiery mills show that in 1941 the industry had used 1,083,756 pounds of rubberized yarn which would amount in short tons to approximately 182 tons.

Larger Rayon Allotment for Hosiery Concerns

War Production Board on February 4 sent the following order to rayon producers: "For the month of March only you are ordered to set aside the output of 12 per cent of your viscose and cuprammonium spinning spindles and 6 per cent of your acetate spinning spindles after defense use instead of the present 9 per cent and 5 per cent figures under order M-37-A, and this order is being formally amended accordingly. This change is ordered in order to make possible a replacement of one pound of equivalent 100-denier rayon for each pound of eligible raw silk poundage instead of the three-quarters pound of rayon to one pound of silk."

The hosiery industry welcomed the increase in the allotment of rayon yarns and noted that the new figure was for March only so that there was optimism that this figure might be increased later on. In this connection one manufacturer estimated that the increase in the rayon percentage would hardly make up for the cut in

nylon yarns for the hosiery industry. For the hosiery buyer the new order held out relief for continued supplies of full-fashioned hosiery in the face of elimination of silk and the threat of the complete elimination of nylon. The distribution of the increased allocation of rayon yarn was on the same basis as the former allocation, it was made clear by the War Production Board. The hosiery industry, silk weavers, and those mills classified as "undue hardship cases" share the increased allocation in the same percentages as they did in the original order. According to the clarification, a total of 12 per cent of the viscose and cuprammonium rayon spindles calculated after deducting for those engaged on war work is set aside and 6 per cent of the spindles engaged in producing acetate rayon.

This compares with a previous total allocation of 9 per cent of viscose and cuprammonium and 5 per cent of acetate spindles. Of the total of 12 per cent of viscose and cuprammonium spindles, 85 per cent is intended for full-fashioned and seamless mills formerly using silk, 5 per cent for former silk weavers and 10 per cent for users falling in the "undue hardship" group. Of the total of 6 per cent of acetate rayon which is reserved, 80 per cent goes to former silk weavers, 10 per cent to "undue hardship" cases, and 10 per cent to the hosiery industry.

FORECAST

(Opinion submitted by COTTON'S market correspondent)

Philadelphia, February 16, 1942

IT IS PROBABLE that by the latter part of this year almost two-thirds of the total production of manufactured goods in the United States will be war goods and only one-third for civilians. In other words, with employment at record figures and with wages at a high level, there will be a sharp reduction in the volume of civilian goods in this country. This means aside from price control in the form of O. P. A. ceilings for most civilian goods, rationing of goods for consumers so that the small total will be allocated among the population in the fairest manner.

It is definite that this war will make all sections of the economy sacrifice some of their former gains or at least cause them to stop taking the offensive, seeking further gains at the expensive of another part of the system of the nation. This specifically means profits will be smaller for management, that labor will not continue to ask more and that the farmer will be satisfied to hold prices down to about the current level.

What is the outlook for the textile manufacturer under such conditions? It is not good, and in general the problems of the smaller units will be comparatively greater than those of the larger concerns. Total production capacity of the industry will be utilized but not necessarily for textiles so that some plants now making goods for the regular trade will shortly have to turn to making war goods under orders of the War Production Board and those plants continuing to make textiles will be making a much larger percentage for the armed forces and less for their regular trade.

Lines of textiles made for the civilian trade, and after all the nation must be suitably clothed to keep up morale, will tend to become standardized with less emphasis on style and more on utility. There will be fewer colors in the lists and fewer different constructions in fabrics. In wool goods it is definite that substitutes such as spun rayon and cotton will piece out wool which in part now will be re-used or reprocessed wool in view of the fact the Army will be taking all the domestic wool clip.

Demands upon cotton and rayon will be at a record level. With wool imports held down by the shipping situation and silk out of the market, demands on the two remaining fibers must be heavy. Manufacturers will have to take an allocation of each based on their relative importance to the war effort. Under such conditions all may only hope that the war effort will be such that an early end to the conflict, by a United Nations victory, will be possible.

OPA Amends Nylon Hose Price Ceilings

After a long investigation by the Office of Price Administration of the women's nylon hosiery price situation, a ceiling wiping out recent substantial increases in wholesale prices was issued February 4 by Price Administrator Leon Henderson, who said retail prices were already as high as they can be permitted to go. Schedule No. 95, effective as of that date prohibits the sale of nylon stockings by manufacturers, wholesalers and jobbers at prices above the highest prices charged during the period October 1 to October 15, 1941. Sales at retail are specifically exempted. "Inflationary price increases and profiteering in nylon hosiery have appeared in wholesale market in recent weeks," Mr. Henderson said. "These advances which are not warranted by any substantial rises in cost of manufacture or distribution inevitably would spread to the retail level if allowed to stand." He said the maximum price schedule brought prices back to where they were before the recent speculative increases occurred.

Dollars per dozen maximum prices that manufacturers may charge for women's nylon stockings were set by OPA in an amendment issued on February 10. A ceiling over prices at the wholesale level also was established by a provision forbidding wholesalers and jobbers from adding more than 10 per cent to the manufacturer's maximums. Retail sales of nylon were excluded also in the amendment to the order and in this connection Mr. Henderson said that retail prices of nylon are as high as they should go.

Durham Sees Hosiery Plants for War Use

Taylor R. Durham, executive secretary of the Southern Hosiery Manufacturers' Association, reported that the War Production Board approved in principle a suggestion he made that full-fashioned hosiery plants left idle by future scarcity of yarns be considered as prospective assembly plants for military precision instruments. Machinery in the knitting mills and particularly the hosiery mills, he said cannot be converted to the manufacture of military supplies but employees engaged in the delicate work of producing full-fashioned and seamless hosiery for women could be quickly trained to do an efficient job of assembling precision instruments, gas masks, and numerous other supplies needed in the war effort.

Mr. Durham said this policy would assist the war production program, help relieve distress in communities and knitting mills, eliminate the probable necessity that many marginal knitting mills will be put out of business completely, and provide a somewhat larger supply of knitting yarns for that part of the hosiery industry into which full-fashioned and seamless hosiery production would be concentrated. Rubber curtailment he said will compel numerous manufacturers to cease operation of knitting machines making hosiery with elastic tops. This specialized equipment, he said, cannot be converted to other classes of hosiery.

F. F. Mills Reject Union Wage Demand

Confronted with a refusal on the part of employers for a 15 cent an hour wage increase, the American Federation of Hosiery Workers has invoked the Wage Tribunal Clause of

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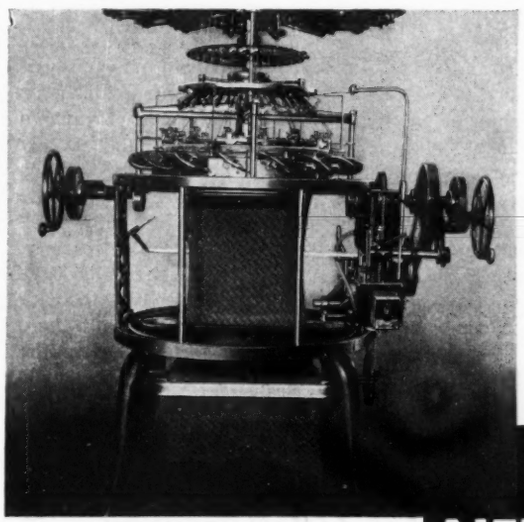

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the agreement between the union and the Full Fashioned Hosiery Manufacturers of America, Inc. Union demands for a wage increase were claimed on the basis of increase in the cost of living from September 1 until the present, the anticipated rise in the cost of living between now and March 15, as well as the loss of earnings of hosiery workers as a result of the use of synthetic yarn substitutes for silk. Under the terms of the agreement if negotiations for a change in wages cannot be successfully concluded, the matter is then submitted to arbitration by a wage tribunal composed of three persons, one, a representative of the union, the other a representative of the association, and a third chosen by the first two. In the event that the union and the association cannot agree upon a third person then the impartial chairman for the industry, William Simkin, is empowered to designate him after consultation with the union and the association. The conference was held in Philadelphia, February 3, and a week previous to that a similar session was held between the union and the Keystone Hosiery Manufacturers Association in Reading, Pa. The employers association in Philadelphia based its rejection on the prospect that shortages of yarn made the future of the industry so uncertain as to preclude any wage increase at this time.

Cheney Explains Underwear Service in War Time

The underwear and allied products manufacturing industry faces the greatest crisis in our history, according to Roy A. Cheney, president of the Underwear Institute. He foresees changes, some mild but more drastic, in the style and design of our merchandise and definite changes in our raw materials and our methods of distribution. "We will go back to almost a frontier economy and the products of our industry which will be in demand increasingly in 1942 and 1943 will be those which found favor and were needed 40 or 50 years ago. I look definitely for a change back to increasingly heavier types of underwear. The old coarse machines will be dusted off and put into production and every factor present and in the making points definitely to the resurrection of the old heavy fleece lined garments for men, women and children. Our garments in the future will be made less and less for style and more and more for utility, primarily warmth and next service, he said.

"Costly so-called helps and services which have grown up in the quest for business for the past twenty years will necessarily be eliminated. The first impact of this need has already been felt by the retail trade which is cutting down on return, approvals and various unnecessary free services. Distributors, sooner or later, will be compelled by the economics of the situation or perhaps by governmental command to place their orders well in advance so that the mills may plan and the Government may plan on the allocation and movement of raw materials and finished merchandise over a six or eight month period." He concluded that the 1942 and 1943 period will be one in which production will be on an all out war basis with civilian needs coming second and greatly curtailed.

Asks Hose Packing Cut

Standardized simplifications of the packaging of men's, boys', women's and children's hosiery, aim to save yearly 7,000,000 pounds of boxboard and paper, was outlined in a request sent out by the War Production Board, textile branch. The recommendations based on voluntary compliance have been approved by the Attorney General's Office as not constituting a violation of the anti-trust laws and are expected to be used as a general pattern for the conservation in the packaging of men's furnishings, underwear and other merchandise.

The packaging of women's nylon hosiery, full-fashioned and seamless, is not disturbed, continuing at one-quarter dozen to a box but for women's hosiery of silk, rayon and rayon and silk it is recommended that in sizes 8-½ to 10-1-2 all constructions be packed half a dozen in a box instead of the one-quarter of a dozen packaging system. Sizes of this type of hosiery under 8-1-2 and over 10-1-2 remain at one-quarter of a dozen to a box. Plain and fancy styles of men's and boys' hosiery wholesaling up to $1.25 a dozen are to be packed one dozen in a bundle with the proviso that white and light colors may be wrapped in paper with chipboard stiffeners. All types of anklets and misses' and children's full length stockings wholesaling up to $1.25 are to be bundled in one dozen lots.

Minimum Wage Level Set at 40 Cents

Secretary of Labor ruled on February 10 that employees engaged in the knitted and men's woven underwear and commercial knitting industry, for the purposes of the Walsh-Healey Public Contracts Act, shall be paid a minimum of 40 cents an hour or $16.00 a week of 40 hours, arrived at whether on a time or piece work basis. The order is to be effective for all contracts subject to the Public Contracts Act, bids for which are solicited or negotiations otherwise begun on and after March 3, 1942. The order follows hearings and is another case of bringing the minimum wage of a particular industry in line with wage rates set up by the wage and hour division, Department of Labor.

Most Hosiery Items Going Under Strict Allotments

Scarcely any item of knit goods is now entirely free of rationing restrictions, so great have been the raw material and yarn requirements for the armed forces. As far as can be foreseen this situation is going to be aggravated rather than eased in the coming months. First it was women's full-fashioned hosiery following the ban on silk imports, then men's hosiery that gave a portion of their rayon and cotton yarns to knitters of women's full fashioned goods. Next affected was women's rayon underwear which was also affected by a diversion of yarn to the women's hosiery field. Lately men's underwear mills have felt a shortage of both cotton and wool and sweater manufacturers are now feeling the pinch of the wool scarcity. Makers of swim trunks have also been hard hit by the new season's scarcity of rubber. Manufacturers admit there will be no actual shortage before the end of March so far as the consumer is concerned but fear the growing shortage of rayon and cotton yarn will be felt at the counters around Easter.

Austin H. Carr Death Loss to Hose Industry

The hosiery industry was shocked early this month to learn of the sudden death of Austin H. Carr, president of Durham Hosiery Mills, Durham, N. C., in the New York offices of the company. In his 48th year, Mr. Carr had appeared to be in the best of health earlier that day. Earl Constantine, president of the National Association of Hosiery Manufacturers said, "The character, personality and performance of Mr. Carr commanded for him an industry-wide respect and affection. He was the first chairman of our board of directors under the reorganization which went into effect in April 1938. He served ably in this capacity for two years and will be missed by a host of friends throughout the industry." Elected president of the Durham corporation in October 1930 as successor to D. P. Carey who had resigned to head Belding-Hemingway Co., Mr. Carr had previously served the firm as vice-president and treasurer for eight years. In New York, C. McD. Carr, a brother, is vice-president of American Enka Corp.

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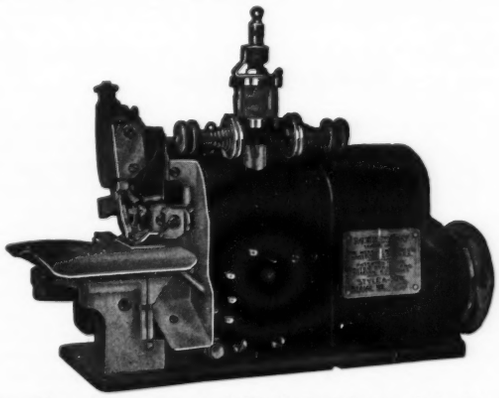

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TRENDS—YARN MARKETS

O.P.A. Issues New Rules for Sales Cotton Yarn, Fixing Ceilings for Mercerized Counts and for Export—Larger Allotment Rayon for Hosiery Industry Offsetting Nylon's Loss—Government Wool Conservation Schedule Means More Outerwear Substituting

Philadelphia, February 16, 1942

ELIMINATION of silk from raw materials available to hosiery manufacturers and plans for the conservation of wool under Government supervision, have made more acute problems of the knit goods manufacturer in connection with his obtaining anything approaching adequate supplies of yarn of almost any type. This action necessarily makes the situation in cotton and rayon yarns that much tighter so even with larger allocations of rayon filament yarns to the knitting trades they are not going to have enough. It will mean curtailment of many civilian styles that have been a feature of the markets for many years. Tightness of cotton yarns has been brought about in part by the large amounts of such counts that are being consumed by Army and Navy contracts. Rayon deliveries are tight because of larger domestic demand plus rules making it mandatory for domestic producers to export a certain amount to our Latin American neighbors whose normal sources of supply are cut off by the war.

Cotton Yarns

It is becoming increasingly difficult for buyers to obtain sales cotton yarns for civilian use; commission houses here report that unless they are able to supply the spinner with a priority number along with the order that the inquiry is refused. At the same time distributors find that demand for cotton yarns for use in the manufacture of goods for the armed forces has expanded sharply in the last few weeks so that in the case of many combed yarn producers about three-quarters of their present output is going into military goods of some type while only about one-quarter of current shipments is going into civilian merchandise. In the case of carded yarns the percentage that is now going into the civilian end of the market is considerably larger than in combed but here too the trend is definitely in the direction of smaller allotment to firms not having high priority ratings for their orders.

In the last month important amendments to the sales yarn ceilings have been announced, applying to both carded and combed and in addition there has been for the first time a ceiling imposed on mercerized yarns. Another new development in the month was the imposition of a ceiling level on cotton yarns exported out of the country which is having the immediate effect of eliminating bootlegging of such counts which had been a noticeable development in the last six months. The civilian trade feels that the export ceiling will have the tendency of cutting down somewhat the volume of yarns leaving the country in view of the fact that former extremely high prices are no longer possible. In the latter months of 1941 reports were frequent that export sales of combed and mercerized yarns had been closed at prices 20 or 30 cents above the domestic ceiling for such a size. In this connection spinners report that export inquiry is very heavy at present.

The domestic price schedule just issued covering mercerized yarns has been termed, "satisfactory" by processors. Previously these yarns had been sold on a ceiling basis which was self-imposed by these firms and the OPA list which was issued early in February outlined ceiling prices several cents higher than the former basis. As an example the former margin for mercerized 50s two-ply was 1 cents a pound compared with 20 cents in the OPA mercerized ceiling list. The only sizes in which the margin was reduced were the finest where the cut was about 4 cents a pound. In general carded yarn producers and distributors are well satisfied with the present ceilings on their product and the latest amendment to the combed yarn ceiling has eliminated a majority of the uncertainties in this. Practically all sellers are satisfied with the bringing of all types of yarns for export under OPA rules, even though this will mean in some cases smaller margins of profit.

Silk

The entire raw silk supply in the country was taken over by the War Production Board through an order issued February 9. This amendment to the silk order stated that: (1) No sale of raw silk may hereafter be made except to and by the Defense Supplies Corporation. (2) Until February 23 silk previously purchased may still be be delivered to parachute manufacturers, if available. After February 22 all deliveries must be made to the Defense Supplies Corporation which in turn will make available whatever quantity of raw silk is required by a parachute manufacturing plant to complete an order. (3) After March 1 no silk may be used in the manufacture of parachutes until the grade and type has been approved by the Defense Supplies Corporation.

Rayon

The allotment of rayon yarns for the hosiery industry was increased February 4 in an order of the War Production Board, making the new figure 12 per cent of the viscose and cuprammonium output comparing with the former figure of 9 per cent. It was made clear that this allotment applied to March only and hosiery manufacturers were hoping that this meant a still larger percentage might be possible for the following month. The new figure represents one pound of equivalent 100-denier rayon yarn against one pound of silk, comparing with the former three-quarters of a pound of rayon to a pound of silk. Rayon yarns take up a larger poundage per dozen than the silk and still more compared with nylon yarns. But hosiery manufacturers say that this substantial increase in the rayon yarn allotment could hardly make up for the sharp reduction in nylon yarn which is considered just about eliminated so far as civilian goods of all types are concerned.

Hosiery manufacturers pointed out that it should be recalled they also were using nylon during the first half of 1941 and that the new order failed to provide poundage to replace that so that with the armed forces now requiring about all of the nylon produced, they declared the hosiery trade would face a shortage of raw material even if these plants obtained sufficient rayon poundage to replace the silk used last year. Rayon producers asserted in this connection that hosiery manufacturers were not the only ones to be forced to reduce their normal operations but that weavers and underwear cloth knitters had been called upon to make changes in their operating schedules.

Worsted Yarns

Manufacturers of outerwear are endeavoring to adjust their affairs to the new Government wool conservation rules which make it possible for most plants to run during this quarter at half the rate of the same period a year ago. In view of this wide spread studies are being made for the substitution of other fibers for wool, with spun rayon and cotton being in the foreground of these. But even when knitters decide what substitute to use they find it very difficult to obtain nearby deliveries especially in rayon. Makers of men's sweaters believe that the wool conservation order will accelerate the manufacture of coats and jackets made from other than knitted material although it is recognized that supplies even of such goods are going to be tight in the coming months for the civilian trade. With OPA ceilings imposed on wool, tops and yarns there has been practically no change in prices of the latter during recent weeks with most sellers nominally holding their price lists at the level of last December.

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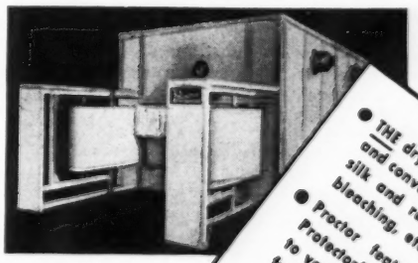

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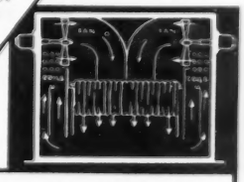

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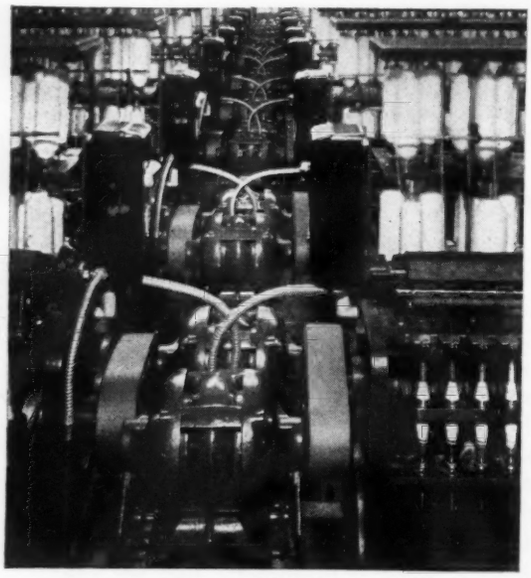

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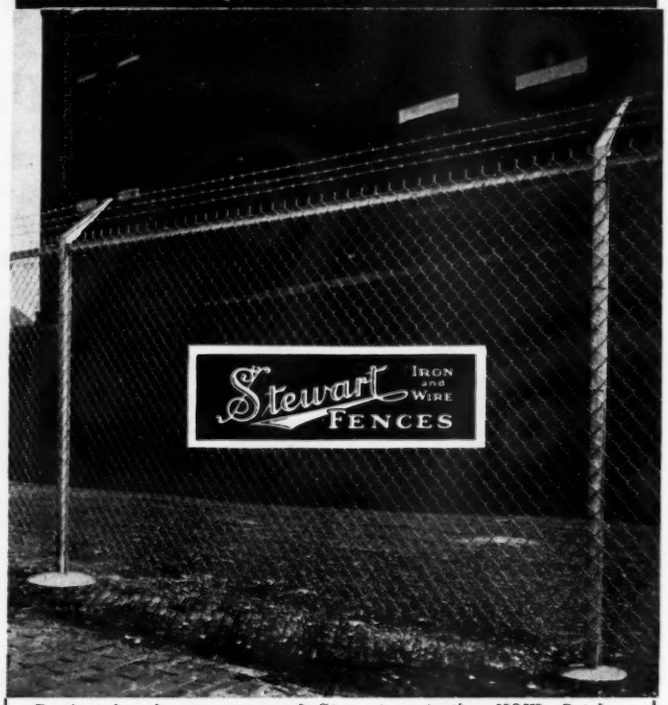

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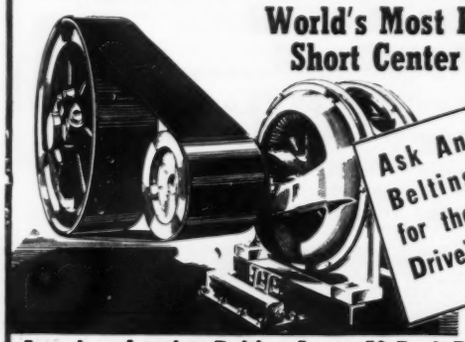

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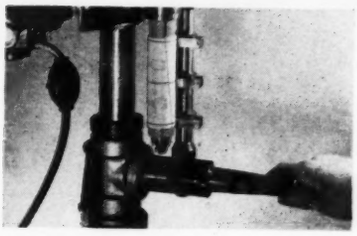

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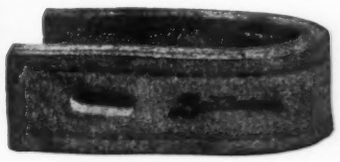

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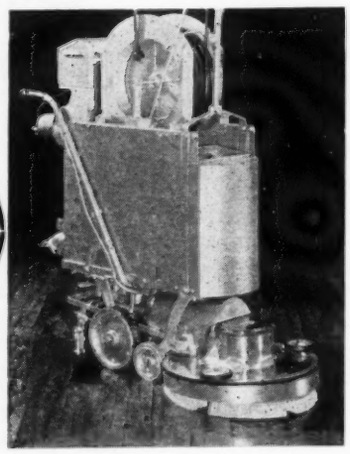

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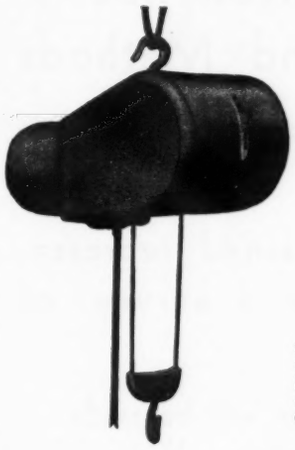

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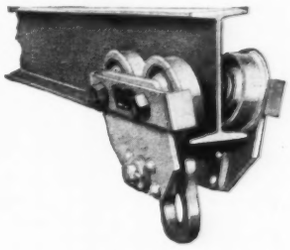

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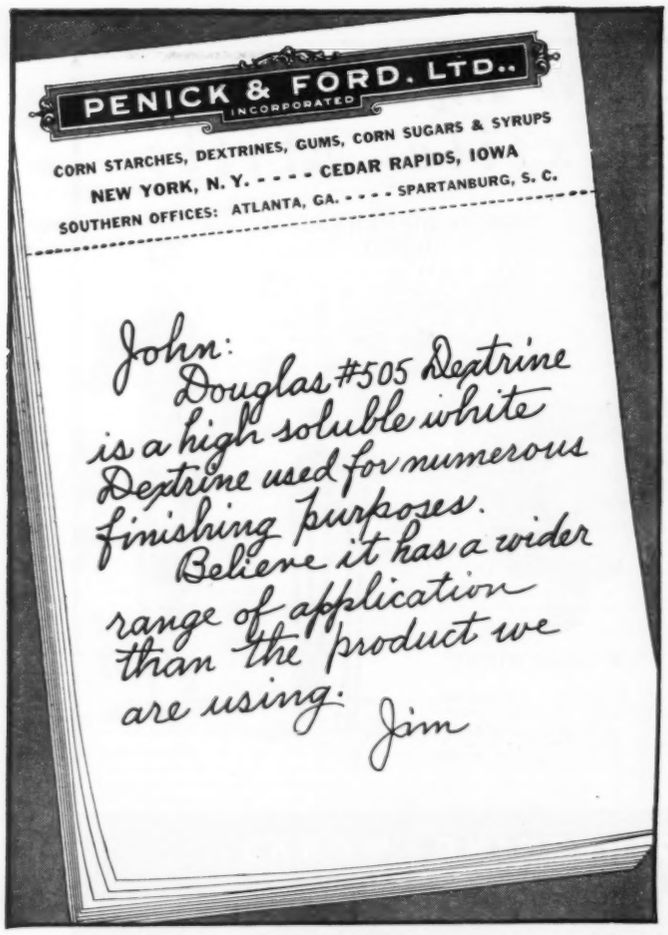
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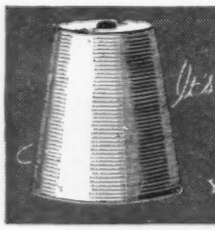

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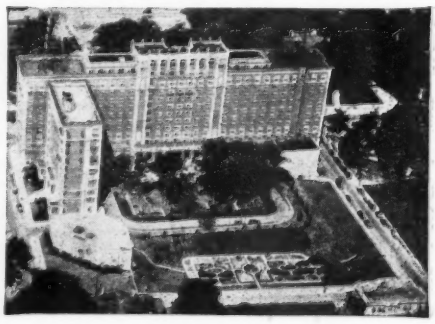

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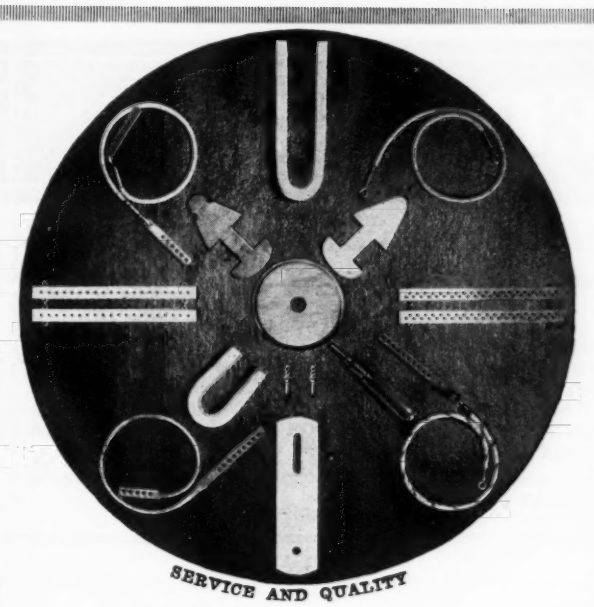

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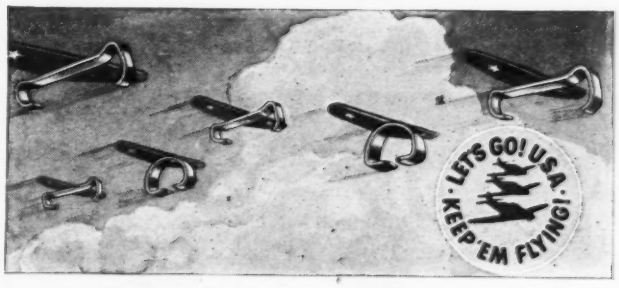

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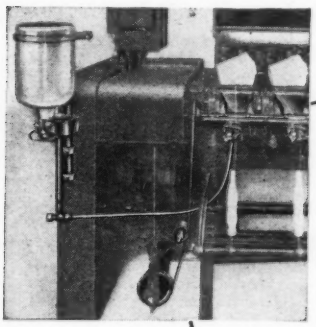

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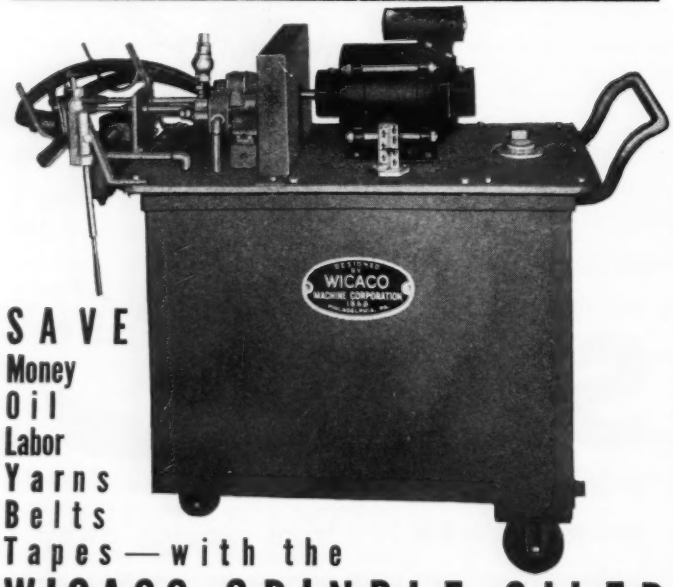

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The construction of these carriers not only permits wide adaptability, but also results in many mill economies and improvements in yarn and fabric quality. The tubes are made of tough paper wound around a "former". The paper is glued together, impregnated to make it water resistant and then hardened by baking. Being thus "built around the hole", the tubes are always concentric with the hole and therefore run true, reducing spindle vibration, with resultant wear and poor work in spinning or twisting. Furthermore, when subjected to changing temperature and humidity (even yarn steaming) they do not become distorted.

A. P. T. bobbins and quills for weaving permit free but controlled delivery of yarn because of their smooth, hard surface and deep, well rounded corrugations. They never splinter and have great resistance to chipping and splitting.

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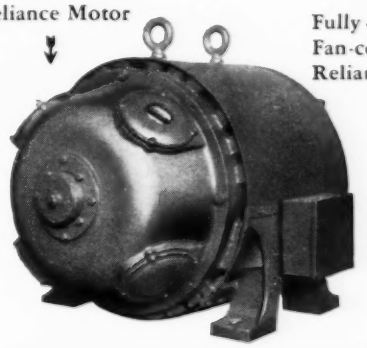
Applying them to boost production and improve quality is APPLICATION ENGINEERING. That's our business.

RELIANCE

Reliance men skilled in Application Engineering start daily on new missions essential to making our great war machine produce more than we ever dreamed was possible. They are answering calls where *motor-drive must be more than power.* These are typical . . . A new tinning process to make our reduced tin supply go three times as far . . . A drive to simplify machine design and insure a top-notch production pace on a hurry-up lot of hundreds of boring mills for producing tank turrets . . . Motors to speed up production of shell-turning lathes . . . A motor-drive for an automatic towing machine that will aid sea-going tugs to handle tows with less strain and reduce chances of losing the tow . . . A hoisting motor for bringing seaplanes to a warship's deck safely in rough seas...These and many more like them are engineering jobs done in cooperation with men who *start* their design with the question, *"What can we get the motor to do besides supply power?"* Such as:

Fully-enclosed, Fan-cooled D-c. Reliance Motor



Fully-enclosed, Fan-cooled A-c. Reliance Motor

RELIANCE ELECTRIC & ENGINEERING COMPANY
1088 IVANHOE ROAD • CLEVELAND, OHIO
BIRMINGHAM • BOSTON • BUFFALO • CHICAGO • CINCINNATI
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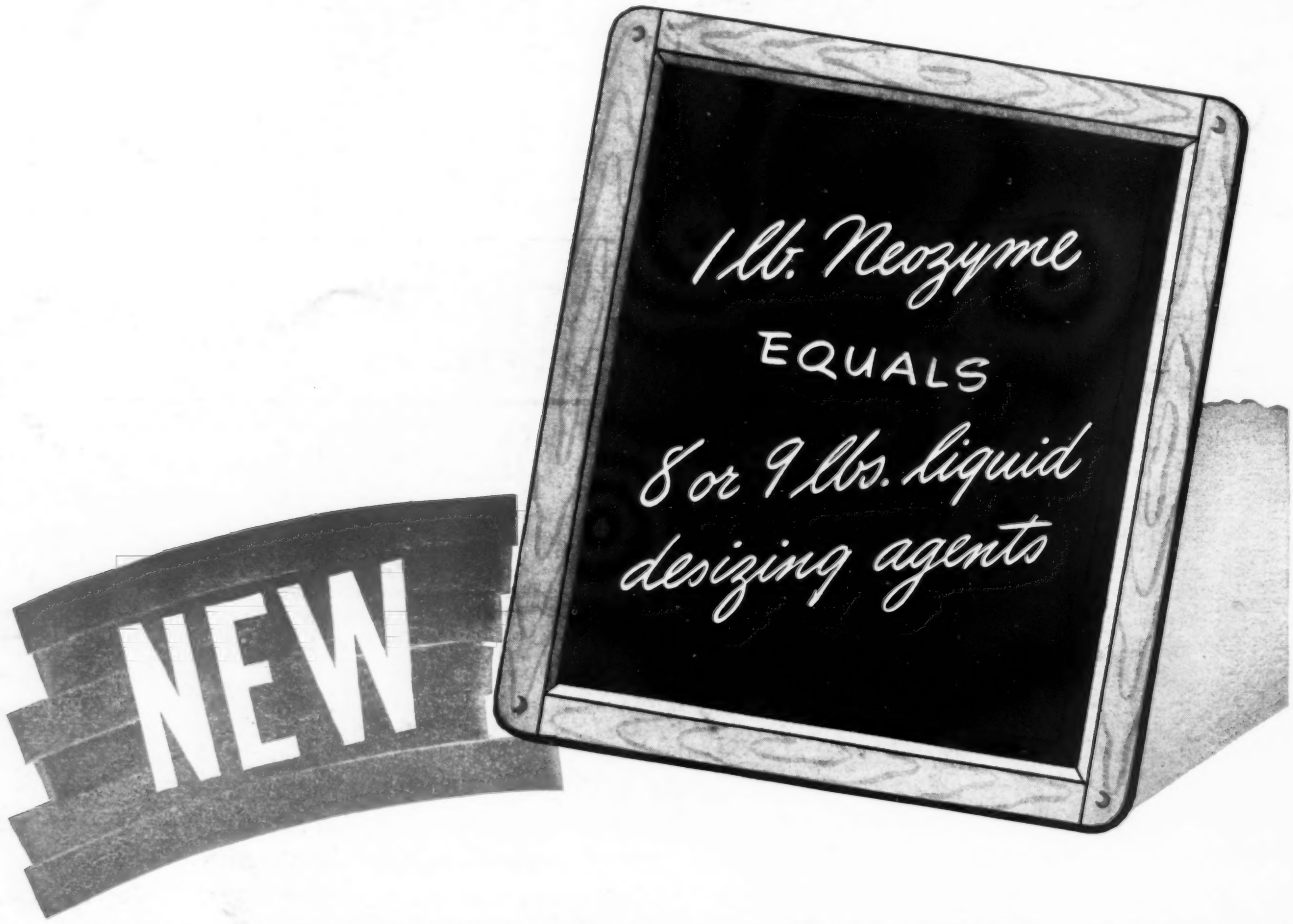
RELIANCE A-C D-C MOTORS



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Temperature: 125-130° F

Time: 30-45 Minutes

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